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From a Portrait in the Louvre *Courtesy of Pharmacal Advance*

DR. THEOPHRASTUS PARACELSUS BOMBAST VON HOHENHEIM

UNIV. OF FLORIDA

Medical
Mahr.

Clinical Medicine
and
Surgery

Vol. 35, No. 1 January, 1928

Paracelsus

IN THE earliest centuries of the Christian Era, the science and art of medicine rose to considerable heights. It was in this period that the great Galen lived and taught.

But the twilight of the "Dark Ages" of history closed down during the sixth century and, for a thousand years, little or no progress was made in Medicine. The monks, particularly in Constantinople, did us the inestimable service of copying the manuscripts of the Greek and Roman masters, and announced that the care of the sick was a holy duty; Galen was worshipped as a god, and whoso dared to question his pronouncements and authority was anathema; the Bible and the works of Aristotle were regarded as the only recognized sources of scientific information.

With the sixteenth century came the dawn of the renaissance of learning, and with it the beginning of modern Medicine.

Among the goodly company of those who made war upon superstition and unsupported authority, during this tremendous period of transition, was Theoprastus von Hohenheim, who later added several other high-sounding names to his appelation, among them Paracelsus, by which he is most generally known today.

Paracelsus was born at Einsiedeln, in Switzerland, in 1493, and proved to be one of the most enigmatic characters in medical history, as well as the clinical standard-bearer of his times.

When he was sixteen years old he entered the University of Basel, and finally secured his medical degree at Ferrara, Italy, in 1515, at the age of 22 years.

At this time a large group of students, doctors, unattached scientists and pseudo-scientific charlatans was roaming all over Europe, practicing various arts, picking up a great deal of miscellaneous knowledge and experience and sowing the seeds of rebellion against constituted authorities in the world of thought. Paracelsus joined this motley throng for about ten years, and became well known as a powerful and original thinker, a man of boisterous habits and untrammeled speech, but possessing, withal, a keen and critical medical instinct.

In 1525 he tried to become respectable, and accepted an appointment as professor of medicine at Freiburg; then he was a professor at Strassburg for a short time; and finally was made professor of medicine and town physician at Basel, in 1527.

But Paracelsus had learned bad habits during his years of wandering. He was combative and disrespectful of all authorities, coarse and vulgar in his behavior and a bully by nature and training. He gave his lectures in the low-German of the com-

mon people and did not hesitate to attack Galen and Avicenna, the popes of Medieval Medicine.

Moreover, his mind had become more or less filled with the ideas of astrology, alchemy, witchcraft and other doctrines of that sort which were rife at the time, so that he found no place in the scholastic atmosphere of the universities.

He was forced out of his regular teaching positions in 1528, after having a violent dispute with the magistrates, and started out again upon the career of a peripatetic physician, teacher, drunkard and tavern brawler.

In all his teaching and writing he made war against intrenched dogma and insisted upon the importance of personal observation of conditions and the rational interpretation of the symptoms of disease and its treatment. He was the first to put forward the idea that the processes of physical life are chemical in their nature, and that, therefore, we must look to chemistry for our remedies for the cure of disease.

After a number of years of this strenuous and exciting life, he tried once more to settle down, in Salzburg, but this quieter period was short, for he died there in 1641, railing against traditional knowledge and false dogmas to the last.

In forming an estimate of the place which Paracelsus should occupy in the history of medicine, there is a tendency to lay too much stress upon his personal foibles and what we now recognize as his mistaken ideas about alchemy, thaumaturgy and the like.

We must not forget that he wrote *Chirurgia Magna*, a practical treatise on surgery; introduced mercury for the treatment of syphilis; rescued therapeutics from the realm of magic; was the first to recognize the relation between goiter and cretinism; preached asepsis, as then known; and popularized the use of laudanum, lead, sulphur, iron, arsenic, copper and of tinctures and alcoholic extracts. His complete works, published in 1589, filled ten volumes.

In the light of present knowledge we must place Paracelsus among the great minds who made possible the beginnings of the science of Medicine, as we now know it.

You can hardly make a friend in a year, but you can easily offend one in an hour.—Chinese Proverb.

THE INDEX FOR 1927

Our good friends—men who are in a position to know—tell us that rarely, if ever, have the numbers of a medical journal contained so much actual *practical* material as appeared in CLINICAL MEDICINE AND SURGERY during 1927.

A medical book of a thousand pages would cost you $10.00 or more. You have already paid for your copies of C. M. & S., and all that is needed to make it a valuable reference book for your library is to *have it bound.*

The index which we are preparing this year will be more complete and useful than ever before—a real review of the world's important medical literature. While it costs us a tidy sum to prepare this index, we offer it to you, *free*, as a part of our policy of *service*. All you have to do is to write, "I want the 1927 Index" on a postcard, with your name and address, of course, and it will be mailed to you as soon as it is ready.

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If you haven't been saving your copies for binding, better start with this one, for *big things* are coming in 1928—things you cannot *afford* to throw into the wastebasket.

A physician, to be a success, must learn more every year *after* his graduation than he learned in any of his undergraduate years.—Dr. Arthur Dean Bevan.

COMPANIONATE MARRIAGE

The recent marriage of the eighteen-year-old daughter of a prominent publisher in Kansas has received a good deal of newspaper publicity, because the circumstances were decidedly unusual.

The bride is still in high-school, and the groom, who is twenty years old, is a sophomore in college. Marriages at these ages are not, of course, exceedingly, uncommon,

but the thing which stamps this one as something different is the fact that the young husband will not be required to assume any financial responsibility for his wife nor for himself. Both will continue to live with and be supported by their parents until the girl has finished a college course and the boy has found a satisfactorily remunerative position. The families of both parties to this arrangement have given their consent and approval.

It is understood that no children are to be born of this union until it is determined that it is on a permanently satisfactory basis, but if plans should miscarry it would appear that the grandparents would be responsible for the care of any such offspring.

This arrangement has points which seem to raise it above the level of a mere newspaper sensation into the realm of constructive sociology.

It is universally recognized as a lamentable fact that present economic conditions render it highly impracticable for most young men to assume the responsibility of providing for a wife and family until they are approximately thirty years old.

It is also well known that young people of both sexes are physically mature and experience strong sex desire between the ages of twenty and twenty-five, and frequently even younger, especially in the case of girls.

If the girl of eighteen or twenty and the boy of twenty to twenty-one are strongly drawn to each other sexually, but see no hope of marriage for several years to come, it is not surprising if they decide to defy puritanical conventions and mate, without the formal sanction of church or state. Such unions, while entirely natural, are fraught with disagreeable possibilities, for the persons involved and for society, the most obvious of which are the birth of unwanted children and the obloquy which still attaches to unmarried mothers, in spite of our boasted enlightenment and freedom of thought.

It is not our intention to discuss, at this time, the problem of the child born out of wedlock and of its mother who is more or less disgraced. Both of these unfortunate persons raise questions of the utmost sociologic importance, whose consideration would require a considerable volume.

What interests us particularly, just now, is the results upon the two persons most intimately concerned. The sex embrace, to be completely satisfying to both participants and to become the physical symbol of a deep, inner union of personalities, must be consummated with the utmost freedom of action and without fear of discovery or consequences. Such freedom is impossible, in the present state of public opinion, unless the two parties to the mating are married.

As things now stand, young people, actuated by powerful sex desire and with the vision of eight or ten years to wait before they can be married, are not to be too strongly condemned if they refuse to deny themselves present joys for the sake of a Society which, so far as they can see, has done little enough for them, or even from fear of personal consequences which they feel competent to obviate, in one way or another.

The result is that their more or less tentative matings are furtive, incomplete, often abnormal, and are overshadowed with a sense of wrong doing and of public disapproval of their course of action. Under such circumstances, the most beautiful and spiritualizing relation in which two human beings can participate, becomes degraded into a mere relief of physical tension and loses most of its bloom and beauty.

Then, too, sex experiments so conducted are liable not to be confined to one partner, and the possibilities of trouble are multiplied when such relations become promiscuous.

Under the conditions of companionate marriage, the two young people have an opportunity to consummate a beautiful union, unconstrained and free from fear and from public reprobation. They can come to know each other intimately without the crushing load of responsibilities too heavy for their untrained shoulders. Growing up together, thus, the chances for a permanent and successful alliance seem to be immensely increased.

If, on the other hand, characteristics develop in either party which make the union unsuitable, they can be released from an intolerable situation with a minimum of shock to their own lives or jarring of the fabric of the body politic.

This idea should be carefully considered by all who have the welfare of the rising generation at heart, to see if, perchance, it may not offer relief from a condition of affairs which all thoughtful people recognize as undesirable, and many feel is becoming distinctly menacing.

Progress in the Science and Art of Medicine

ONCE more we will take stock of the recent advances which have been made in the study of the prevention and cure of disease. We have had the pleasure of presenting most of these matters to our readers during the year, either in leading articles or as abstracts, but it will be well to go over them again, briefly, so that we will have a sound basis from which to step off into the work of the new year.

Trained men have reviewed for us the literature along several lines, and again we present articles dealing with experiences in the newer fields of clinical and laboratory study. We feel that this issue of CLINICAL MEDICINE AND SURGERY will be one you will want to keep handy, for frequent reference.

Research

One of the most interesting features of the past year's work, and one which offers possibilities of large results upon our concepts of clinical medicine, is the revival of interest in the ideas of Metchnikoff, brought about by the work of Ferguson and others, who have shown that a wide variety of infections can be improved or cured by any drug or procedure which will stimulate the formation and activity of the **leukocytes.** A wide variety of substances have been used for this purpose—salts of many of the heavy metals, such as arsenic, mercury, bismuth, etc.; foreign proteins; and other medicaments. Most of these require to be used parenterally (by injection) in order to produce satisfactory results.

We feel that there is reason to suppose that leukocyte stimulation accounts for many of the favorable results which have been reported from the use of a number of new preparations which are coming into use, such as salts of antimony, copper, tin, lead, manganese ,etc., as well as those from mercurochrome, the arsphenamines, metaphen, tryparsamide and, possibly, from the use of malarial infections in the treatment of paresis.

Physicians of all classes should be experimenting along this line during the coming year, and *reporting their results*, so that the value of the idea can be definitely estimated as soon as possible.

The part played by **heredity** in the etiology of **cancer,** as reported by Slye and by Warthin, appears to give us a basis for further constructive investigation of this dread malady. If a tendency to malignant disease is a recessive Mendelian character, we have a splendid argument to use in urging that some thought of ancestry and of posterity should enter into the preparations for all matings from which children may result—we can place eugenics upon an even more practical basis than it has had before.

Noguchi's discovery of the organism causing **trachoma,** while not yet confirmed by other workers, seems to rest upon careful investigation and may prove to be of the highest importance to physicians in the Orient, and also to many of us who practice in the South or see cases of this disease, from time to time.

Small's announcement of the preparation of an antitoxin against the organism of **acute articular rheumatism** was received with respectful interest by the profession, and though confirmatory reports are still lacking, there seems reason to hope that we are to receive new assistance in the handling of this common and dangerous malady.

The use of *convalescent serum,* in the early stages of **poliomyelitis,** has given good results in the hands of several workers this year. Such serums are being more and more widely employed for the prophylaxis and treatment of measles, mumps and whooping cough, and, as the evidence accumulates, their value seems more and more certain. The **erysipelas antitoxin,** of Birkhaug, also merits attention.

Interest in the **bacteriophage** of d'Herelle has not developed so rapidly as we have felt it deserved to do, but the literature in English is accumulating and more workers are studying it. Dutton has done some valuable study of a phage against the streptococci, and the gonophage is being carefully investigated. This subject offers immense possibilities for future laboratory and clinical study.

Besredka's reports on the results of administering **vaccines by mouth** still lack extensive confirmation, but the method may prove to have immense clinical possibilities.

The use of protective vaccination **against diphtheria,** by means of toxin-antitoxin mixtures, is now being widely practiced, with gratifying results; but the fact that severe reactions occasionally occur is delaying the universal use of the method. The reactions from immunizing injections

against **scarlatina** have been so frequent and severe that they are not generally used.

The introduction of diphtheria **toxoid** (a toxin, treated with formalin and heat so as to destroy its toxic, while retaining its immunizing properties) and of a **ricinoleated antigen** against scarlatina (in which the same result is obtained by treating the toxin with a sodium soap of ricinoleic acid), should do much to popularize the use of these highly important adjuncts to preventive medicine.

The realization that **insulin**, while now considered indispensable in the treatment of diabetes, is not a cure for that disease; and the inconvenience (and sometimes danger) resulting from repeated hypodermic injections, over long periods of time, have led to active efforts to discover some substance which would produce insulin-like results, and might be given by mouth.

Several such substances seem to have been discovered; some of pancreatic origin and others coming from other sources. Frank has reported interesting results from **synthalin**, a derivative of guanidine; a pancreatic extract, known as **glukhorment**, has been sponsored by no less an authority than von Noorden; several pancreatic extracts, for oral administration, are now available in the United States; Vogel states that **myrtallin**, a vegetable product made from huckleberry leaves, keeps down excess of sugar in most, but not all, cases.

Active study of the new **vitamine E**, which appears to be concerned with the functions of reproduction—its absence causing sterility—is being actively carried on; and while its place in the scheme of things can not be considered so well established as that of the other vitamines, evidence in its favor is accumulating.

Warthin, of Ann Arbor, announced before the American College of Physicians, last February, his firm belief, based upon careful study of a large and varied collection of material, that leukemia, **Hodgkin's disease**, mycosis fungoides and allied conditions are essentially malignant in character.

Hall, of Kansas City, has come, independently, to a like conclusion and has personally demonstrated to us material which points to the interesting possibility that **pernicious anemia** is closely allied to leukemia and is also malignant in character. His observations have not yet been published, but they open up what may prove to be a valuable line of thought.

Among many minor matters of interest are the discovery that **tularemia** is far more prevalent than was formerly supposed, and the active study of this disease; the development of apparatus and methods for the accurate **photographing** of the **fundus oculi**; and the discovery, by Hopkins, of Illinois, of a new rare earth, named Illinium, which, while it may be of no value in medicine, demonstrates anew the soundness and validity of scientific method and the laws of Nature.

General Therapeutics and Diet

A number of dietary treatments have assumed increasing importance during the past year, notably the **liver diet** in treating **pernicious anemia** and the **ketogenic diet** in **epilepsy**.

A number of workers have reported very gratifying results, in treating pernicious and grave secondary anemias, from the daily use of from 200 to 300 Gm. of liver or other edible viscera in the diet. This matter is so fully dealt with in one of our leading articles that it will not be discussed further here.

It was discovered, more or less fortuitously, that epileptic children who developed systemic acidosis had a marked decrease in the number and severity of their attacks. Since then a number of clinical researchers have deliberately fed patients of this sort upon diets containing an excess of fats, so as to produce a definite ketosis, and have found that the same result occurs.

So far, this method seems to have a rather narrow field of application. It appears to be suitable only for children—not for adults; it is difficult to persuade a child to eat the high-fat diet over long periods; such a diet is not without danger, unless it is carefully controlled by a physician who is trained in dietetics and physiologic chemistry; and the method can scarcely be considered curative, as the attacks begin again as soon as the urine of the patient is free from acetone bodies.

The discovery that **cod liver oil** contains large quantities of the antirachitic vitamines A and D, so that it can, to a certain extent, compensate for a deficiency of exposure to the actinic rays of sunlight, has led to the rapidly increasing use of this substance, as part of the diet of pregnant and lactating women and of infants and children. Such use appears definitely to increase general health and resistance to disease.

Though the disagreeable flavor of this oil has been largely eliminated, in several of the newer preparations, it still has unappetizing properties, and active research is being conducted to produce a potent and palatable extract or concentration. Several such extracts are now available to the profession, but no large mass of clinical confirmation of their value has yet accumulated. The wise physician, unless he definitely desires to experiment and thus add to our knowledge of the extracts, will continue to use a reliable preparation of the oil itself.

Several clinicians have reported favorable results in treating **gonorrhea** by infecting the patient with malaria, as is done in treating paresis. This is an interesting problem for study in hospitals, but so long as there is a possibility that such an infection acts merely by stimulating the leukocytes; and while there are a number of chemotherapeutic agents—neoarsphenamine, mercury succinimide, lactigen, metaphen, armervenol, etc.—which will produce the same results on the white cells, with less danger to the patient, it would seem wise to employ these first.

The fact that **liver extracts** have been shown to reduce high blood pressure more and differently than it is reduced by histamine or choline or both; together with the recent discovery that a nonprotein fraction of the liver seems to produce the same effect upon the course of pernicious anemia as that obtained by feeding the whole substance of the organ, suggests the interesting idea that the liver may prove to be an important endocrine gland.

The development of a **portable electrocardiograph** should popularize the study of the heart's electrical reactions, even though the machine is decidedly expensive; and the introduction of a **recording sphygmomanometer** has removed the personal equation from blood pressure studies and placed them in the group of accurate, scientific procedures.

The Newer Drugs

Among the newer drugs which are coming into increasing prominence, **acriflavine** (neutral) is attracting more than passing attention. Favorable results have been reported from its intravenous administration in **tuberculosis, gonorrhea** and various other conditions, and it seems to be practically a specific for **Malta fever,** which is now known to be much more common in this country than was formerly supposed. This drug is also giving a good account of itself when administered by mouth in infections of the urinary tract.

Ephedrine may now be considered to have definitely established itself in our armamentarium. Several firms are now producing it on a large scale in the United States, so that we are assured of an adequate supply. Its value in the amelioration of the symptoms of asthma and hay-fever has now passed the experimental stage, and it is coming into wider use in the practice of otolaryngology where, when combined with butyn, it makes an effective and relatively safe substitute for cocaine.

One of the most important announcements of the year is that **barbital sodium** and some of the other barbituric acid derivatives are effective antidotes and prophylactics against the toxic effects of cocaine and its derivatives. Not only will large doses of this drug, given intravenously, arrest the convulsive symptoms of cocaine poisoning, but, if given at the same time as the anesthetic is administered, much larger doses of the latter may be employed without untoward results.

In searching for respiratory stimulants, to be used when this function fails, during general anesthesia or under other circumstances, many are finding that, when it is available, nothing surpasses the inhalation of **carbon dioxide.** A number of anesthetists are now demanding that a tube of this gas be attached to the machines they use, so as to be ready for an emergency.

While speaking of general anesthesia, it may be in place to note that **ethylene** is very largely replacing ether, in the better equipped hospitals and that, under careful management, its explosiveness is not causing the unpleasant results which were rather feared when it was first introduced.

Investigations into the properties of a number of the **colloids** are being actively prosecuted, and the use of these preparations is becoming more extensive. Many of the colloidal suspensions of the heavy metals and their salts are being found to be practically nontoxic, in therapeutic doses, and most of these will increase the leukocyte count.

The use of colloidal gold in inoperable carcinomas and following the surgical removal of these neoplasms, seems to have sufficient results to warrant its more general employment. Colloidal lead is still too toxic for general use; but preparations of

copper, arsenic, mercury and other metallic salts are giving good results in the treatment of various infections, in the hands of many of the physicians who are using them.

The past year has seen a wide extension of the use of **calcium**, in a variety of conditions, from hay-fever and asthma to pyloro-spasm and epilepsy. This subject was very fully covered in CLIN. MED. & SURG. for October, 1927. A combination of calcium lactate and lactose, given by mouth, has been shown to give particularly good effects.

A number of careful workers have reported surprisingly good results from the intravenous administration of the salts of **o-iodoxybenzoic acid**, particularly the ammonium salt, in cases of acute and chronic infectious arthritis. The relief of pain is prompt and a reasonable return of function frequently follows the use of this remedy.

A chemical combination of bismuth and arsenic, known as *bismuth arsphenamine sulphonate*, or **Bismarsan**, for intramuscular use, was reported, at the A.M.A. meeting last spring, to have produced interesting results in cases of syphilis where the arsphenamines have become ineffectual or where intravenous medication is contraindicated. This report was published in the *J.A.M.A.*, for Oct. 29, 1927.

Among the other drugs which are worthy of mention are **ceanothyn**, a vegetable product which, when given by mouth, seems to possess the power of controlling hemorrhage, from whatever source; a liver extract, for oral administration, known as **anabolin**, which is reported to have considerable effect in lowering the blood pressure; and an extract of **Rhus toxicodendron**, which is offered for the treatment of ivy poisoning.

Surgery and Obstetrics

The recent progress in surgery is fully covered in one of our leading articles.

In the field of obstetrics, the relief of **sterility**, due to ovarian insufficiency, is being accomplished, in many cases, by the administration of extracts of these glands, frequently in combination with synergistic endocrine products.

The determination of **early pregnancy** by the sugar test, as proposed by John C. Hirst, II, in *Am. J. M. Sc.* for June, 1926, should be of value in many cases.

In **vomiting of pregnancy**, the Thalheimer treatment is giving excellent results. This consists in the intravenous injection of from 300 to 1,000 cc. of a 5- to 10-percent **dextrose** (glucose) solution, containing 10 units of insulin to each 300 cc. of the solution.

In **eclampsia** the intravenous injection of 20 cc. of a 10-percent solution of magnesium sulphate, followed by 10 cc. doses, if needed, has proved a valuable addition to our resources for treating this dangerous and often appalling complication.

Puerperal infections, when general, are often benefited by the intravenous injection of solutions of **metaphen** or mercurochrome; and, when localized, they frequently yield promptly to intramuscular injections of **lactigen**, or other prepartion of **boiled milk**.

Resuscitation of the newborn can usually be accomplished by inhalations of carbon dioxide or parenteral injections of **alpha lobeline**.

Physical Therapy

While a number of new or improved pieces of apparatus for the application of physical agencies to the treatment of disease have appeared during the past year, the most significant fact in this connection is that the studies are becoming intensive rather than extensive; quantitative rather than qualitative. In other words, that we have ceased to be wholly preoccupied with *what* physical measures will *do*, and are striving to discover *how and why they do it*.

Efforts are also being made to standardize the nomenclature of physical therapy and render it sufficiently accurate and dignified to be used by scientific men without a shudder.

We are not so completely preoccupied with the uses of elaborate machines as we were a few years ago, and massage, vibration, hydrotherapy, corrective exercises and similar measures are coming in for more scientific study and wider use.

Several varieties of glass are now on the market which purport to transmit ultraviolet rays in the "vital" range—2,900 to 3,200 Angstrom units. At least one of these appears to be entirely satisfactory; some others are not. It would be well to investigate before equipping our houses with such glass.

The past year has seen the rapid development and popularization of **carbon arc lamps**, in this country. These seem to have the advantage that the rays they emit resemble those from the sun more closely than do the radiations from any other arti-

ficial source. They are, moreover, less expensive and more durable than the quartz-mercury lamps. These latter, especially the water-cooled lamps, still have a large field in conditions where concentrated ultraviolet radiations are indicated.

The study of the powers and properties of **irradiated foods** still goes on, and there is evidence to the effect that the substances in the foods which are affected by ultraviolet rays are **sterols**, of which ergosterol appears to be the chief.

Recent investigations have shown that the irradiation of a lactating woman, with ultraviolet rays, gives to her milk demonstrable antirachitic properties. This finding may prove to be of decided clinical importance.

While the development of apparatus for the administration of the various light energies, visible and invisible, goes on apace, especially in enlarging the field of application of **infrared** radiations and making the indications for their use clearer and more definite—they are now known to be beneficial in all types of deep-seated pain and to cause general relaxation and increased activity of the skin structures, as well as equalization of the circulation—the appearance of appliances for administering **mechanical massage**, vibration and manipulation has been particularly notable. A number of excellent machines for this purpose are now available and should be more widely used.

Thirty years ago, a good **x-ray** picture of the hand required a half-hour exposure: A better one can now be made in 1/10 of a second. An x-ray apparatus which gives promise of being efficient and practically "fool-proof" was shown for the first time in 1927. This should be a boon to physicians who desire to do their own roentgenographic work, especially fluoroscopy.

Suggestions

Two lines of investigation which, so far as we have seen, have not yet been taken up, appear to us to be worthy of serious study:

1.—What, if any, is the influence of the saliva, especially when it is in an abnormal condition as a result of diseased or unhygienic conditions in the mouth, upon gastric functions and diseases? What is the effect upon digestion of the widespread use of tooth pastes and mouth washes? Exactly what and how much influence upon digestion and gastrointestinal physiology has the increasing habit of hurried eating, generally with the mind preoccupied with business and other problems?

2.—Much has been said and written about the deleterious effects of the preponderance in the modern dietary of highly-refined carbohydrates—milled flour, granulated sugar and the like.

Exactly what and how much effect upon digestion and general health, is produced by the almost universal custom of eating meat and eggs which have been in cold storage for considerable periods of time?

Many problems of the highest importance remain for solution by medical science; but the science of Medicine is still far ahead of its practice.

What we need most is the industry and enthusiasm to keep abreast of the work being done by the researchers, and the open-minded eagerness to apply their important findings to the treatment of those sick and suffering human beings who apply to us for aid.

If a man can write a better book, preach a better sermon or make a better mouse trap than his neighbor, though he build his house in the woods, the world will make a beaten path to his door.—Emerson.

THE PRACTICE OF *MEDICINE*

The dictionary defines *medicine* as: "(1) Any drug or remedy; (2) The art or science of healing diseases; especially by the administration of internal remedies."

In days gone by, surgery—such as it was—was performed by barbers—men of little or no professional standing; while physicians were recognized, even then, as learned men. Even today, when surgery has taken its place as the noble companion of medicine and is, by some, exalted far above it, the surgeon in England is not an M.D., but a C.M. (Master of Chirurgery). Even so famous a surgeon as Sir W. Arbuthnot Lane is not "Doctor Lane" but "Mister Lane."

In most of our states the osteopath is permitted to practice most branches of surgery and physical therapy; in many, the chiropractor has only slightly less authority and the Christian Scientist and faith healer practice their gentle arts unmolested.

But we, and we alone, are Doctors of *Medicine*. We are legally entitled to practice surgery and to do all that can be done

by the osteopath, the chiropractor, the naprapath, the naturopath, the layer-on-of-hands, *et id genus omne;* and in *addition* we have the authority to administer such *medicines* as the case in hand seems to require.

Far are we from belittling the tremendous accomplishments of modern surgery or the unreckonable strides which have been and will be made in the various branches of physical therapy. All these things are part and parcel of therapeutics, in its widest sense, and if we neglect to study and use them, wisely and thoughtfully, we are doing injustice to our patients and to ourselves.

But, in our strenuous efforts to keep up with the latest discoveries and announcements regarding ultraviolet and infrared rays, diathermy, cervical sympathetic resections, pyelography, dietetics and other matters of acknowledged importance, let us not become so absorbed in the chase as to forget that we are *Doctors of Medicine.*

While physical agencies and surgical and laboratory technics have been rushing forward at an astonishing pace, internal medicine has not been standing still. The discovery and development of new and powerful *drugs* has been as notable a feature of the last decade or two as has the invention of new pieces of apparatus; and the development of the technic and application of parenteral medication (intravenous, intramuscular and hypodermic) has been no less significant than the progress in other technical lines.

The surgeon studies anatomy and the mechanism and possibilities of his instruments with indefatigable persistance. The physical therapist studies physics and the construction and powers of his apparatus with an almost religious zeal. When the internist and practitioner study physiology and pharmacology with equal assiduity there will be no more wails about the decadence of general medical practice and the inroads being made upon us by the cultists.

We are printing, in this number (page 43), a plea for sane and balanced medical practice, and a review appeared recently (Dec. p. 962) of a modest little book whose value and significance are by no means indicated by its small size. If every one of those who see these words would take them to heart and then read the article and study the book and *put their teachings into practice,* the dawning of a new day in Medicine would not be far off.

How dare we complain when others, whom we stigmatize as incompetent, make use of healing measures which they have as good a *legal* right to employ as we have, while we continue to neglect the cultivation and development of the one line of therapeutics to which our right is *exclusive.*

Let us study our *drugs,* new and old, and the most modern and effective methods of administering them; let us study our patients, intensively, individually and with open minds; and then, let us take our rightful place in the scheme of things as Doctors of *Medicine,* and safely challenge whoever will to *try* to supplant us in the gratitude of our patients and the respect and esteem of our communities.

The treatment of a disease may be entirely impersonal; the care of a patient must be completely personal.—Dr. Francis W. Peabody.

STOP, LOOK AND LISTEN

As we drive gaily along the highways, with our trusty "bus" hitting on all six cylinders, we come, now and then, to signboards bearing such legends as, "Slow down!", "Go slow! Sharp curve ahead!" or "Stop, Look and Listen!"

Those who heed these warnings generally arrive at their destination about as soon as those who do not; and even if they are a few minutes late, *they arrive all in one piece,* which cannot always be said for their less cautious contemporaries.

There is always some reason for putting up such signs as these. Experience has shown that certain conditions of the road or the surrounding landscape make certain places uncommonly dangerous for fast driving. And then, the courts have recently ruled that express trains *always* have right of way over automobiles, so your widow won't be able to collect a cent of damages from the railroad company.

If you do not *watch* for these signs you may fail to see them; but, in that case, you have no right to ascribe what happens to the malignity of Divine Providence. The warnings were *there,* if you had taken the trouble to *look.*

Nowadays we purr along through the weeks and months so smoothly and with so little disturbance that we are apt to feel that there is no need to keep our eyes on the road all the time and to watch for

danger signals. So many things have been moulded to meet our needs and desires that it is easy to get the idea that the laws of nature were planned solely for man's comfort and convenience.

This is not the case. The laws of nature were in operation before there were any men to get mixed up with them; and they are *no respecters of persons.* A locomotive will knock your car into kindling wood just as effectively, whether you are a ditch-digger or a millionaire; a bootlegger or a philanthropist.

But always, when we are approaching dangerous places in the road, there are warning signs, if we will take time to look for them.

There is no magical virtue in January first, more than in other days, but we have come to look upon it as a day of beginnings and so, perhaps, it will be easier to cast an eye over our surroundings at the beginning of the year than at another time.

We all know something about the physical dangers we are likely to run into—too much food and "hootch" and excitement; too little exercise and rest and sunshine and play. Perhaps we feel, that, whatever may be the case with others, there is no cause for *us* to worry about these things, because we have taken chances for years and "got away with it."

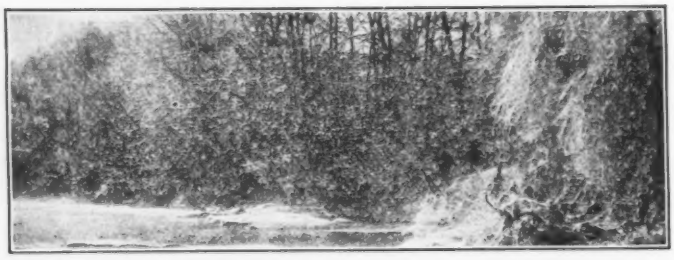
There is, of course, no valid reason to *worry* about anything, but the wise man, if he has been "hitting sixty" for a while, will stop occasionally to see if, perchance, he has run past a red lamp. If so, there may yet be time to back up a little, before the cops catch him, and, thereafter, proceed with a bit more caution.

The golfers talk glibly about "mental hazards." There are things of that sort in other places besides the nasty, ninth hole. They bob up at the *nineteenth* hole, sometimes, or even in our offices and homes, and if we overlook them we are liable to slice into the rough and waste a lot of time looking for our ball, or even lose it entirely.

There may not be a habit you need to change in order to make your life more efficient and happier, or a thing you could do to make yourself more useful, to yourself or to other people. There may not be so much as a tack in the road to puncture your right front tire and send you skidding. But won't it be worth while to slow down or stop, occasionally, to see if you have missed some traffic sign that would help you find the right road without wasting time and energy?

We have to hold a pretty stiff pace, these days, in order to keep up with the procession. All the more reason why we should watch the road and the signals. If we stop, look and listen we are reasonably sure to have

A HAPPY NEW YEAR.



Leading Articles

Progress in Surgery

During the Year 1927

By GUSTAVUS M. BLECH, M.D., Chicago, Ill.

WHILE the literature of the past year teems with reports, all of which show progress either in the application of standard operative procedures to new conditions or widening the indications for such conditions, or showing improvements in the technic of operations, or in conditions incidental to the operation; yet, on the whole, there are no startlingly new operative procedures which stand out boldly as milestones of progress.

In the following synopsis, space necessarily limits the number of reports that can be mentioned and endeavor has been made to include matters which are of interest to the largest number of surgeons. The review deals with progress in the various general regions of the body.

Surgical Operations in General

Postoperative shock has been obviated to a great extent by the precautions usually observed during operation and immediately following operation. The other complications, such as pneumonia and embolism, still give the surgeon much concern. Short and Frazer[1] think that sepsis is not so much a factor in pneumonia as has been thought. Operations in the upper abdomen probably give rise to reflex inhibition of the diaphragm, followed by collapse of the lung and infection. They also think that socalled postoperative embolism is more often cardiac failure. Chabanier[2] points out that the use of insulin has changed the prognosis of surgical operations in diabetes.

Boshamer,[3] in regard to the thrombosis that immediately follows operations under ether, says there is an increase in the thrombin and a decrease in the anti-thrombin contents of the blood, this disturbance in the normal equilibrium of these substances reducing the coagulation time of the blood for several days.

Meleney[4] thinks that many streptococcic infections of operative wounds can be traced to the operating room personnel, a matter which he has proved by observation. He suggests a stricter use of masking.

Other points of interest in general surgery are the occluding of the accompanying vein when arteries are ligated, as pointed out by Holman[5], who finds gangrene much reduced when the vein is occluded proximally to the arterial ligation; and the precautions to be observed in operating upon obese subjects over 50 years old, as mentioned by Henderson[6] and Snell.[7]

Surgery of the Head and Neck

In head and neck surgery, Kosyrew[8] describes a new method of draining the cerebral ventricles, by transplanted strips of omentum. Of 11 patients dealt with in this way, 9 showed continuous recovery.

Bunnell[9] describes a new personal technic for suturing the accidentally divided **facial nerve** in the temporal bony canal. His is the first successful suture of the nerve within the canal.

In rebellious **neuralgias** of the superior maxillary nerve, de Lamothe and Dutheillet[10] remove the nerve from the inferior orbital foramen to the base of the skull.

Hunt[11] mentions that even 15 years ago the mortality following operations for **brain tumors** was 80 percent. Today the prognosis for all brain tumors (except the solid gliomas and diffuse endotheliomas) is excellent. In the case of malignant cerebral tumors, Laruelle[12] first makes a crushing decompressive operation, to afford mechanical relief and to provide an opening through which x-rays may be applied directly to the tumor. This latter is merely palliative, easing the condition of the patient until death occurs.

Clute[13] mentions his good results in very conservative incision and drainage in 131 cases of tuberculous glands of the neck.

Coleman[14] successfully operated in a case of spasmodic torticollis, by intradural posterior root section and extracranial division of the spinal accessory nerve.

From animal experiments, Ballance and Colledge[16] conclude that **paralysis of the vocal cords** may be cured by anastomosis of the recurrent laryngeal nerve with the phrenic nerve; that diaphragmatic muscle paralysis may be relieved by uniting the phrenic to the decendens noni and hypoglossal nerves.

Thoracic Surgery

Smith[16] has produced **pulmonary abscesses** in animals by the intratracheal inoculation of matter scraped from the teeth of pyorrheic patients. He concludes that postoperative lung abscesses are due to aspiration of infected material. Schlueter and Weidlein,[17] on the other hand, from their experiments on dogs, find that such abscesses are due to the dislodgment of thrombi and the creation of infected emboli. They think that the best prophylactic measures against such abscesses are strict asepsis, reduction of operative trauma and avoidance of mass ligature of tissues.

Hedblom[18] reports excellent end-results in a series of cases of **bronchiectasis** treated by thoracoplasty. Several other writers report good results from this operation in pulmonary tuberculosis.

Several writers report that the results obtained in cases of lung tuberculosis, following **phrenicotomy**, were not so good as have been generally recorded in the literature. Paralysis of the diaphragm is very incomplete and compression of the base of the lung is insufficient.

Borchardt and associates,[19] in a case of bilateral pulmonary tuberculosis, created a **pneumothorax** on the most affected side and did a phrenicectomy on the other. They think that pneumothorax is indicated when there is a cavity and phrenicectomy when the lung is sclerotic.

Experimenting with esophageal incisions, Carrington[20] found that end-to-end suturing yielded an uncertain measure of success but that when successful the anatomic and physiologic effects were the best. Anastomosis should be done with the viscus fully expanded and pneumothorax should be avoided.

The indication for surgery in **angina pectoris** is to interrupt the centripetal path of pain before it reaches the central nervous system. Spiegel,[21] by experiments, has shown that the path of pain in angina pectoris is through the stellate ganglion and rami communicantes, to the posterior roots between the eighth cervical and fourth dorsal vertebrae. In man, Spiegel thinks that division of the posterior roots referred to seems the only applicable operation.

Richter[22] gives the results in 100 recent consecutive cases of thyrotoxicosis treated operatively. Seventy-six were primarily hyperplastic goiters and 24 secondarily **toxic (adenomatous) goiters.** Lugol's solution was administered preoperatively in every case. After operation, 94 of the patients showed an immediate fall in basal metabolism below 15%. Ninety-nine of the 100 patients operated upon were relieved of hyperthyroidism. There are numerous reports of the same type in recent literature.

In **cancer of the breast,** White[23] finds that removal of the pectoralis minor is not essential. Of all operable cases, 30 to 35 percent will be free from recurrence at the end of the five year period, and, in cases free from axillary metastases at the time of operation, 60 to 65 percent will be free from recurrence 5 years after operation and 50 percent after 10 years.

Abdominal Surgery

Schoenbauer,[24] from the von Eiselsberg clinic, mentions the use of pepsin acidified with hydrochloric acid in the treatment of **perforation peritonitis.** In 39 cases of appendix perforation peritonitis, treated with irrigations of this mixture, there were no deaths. Schleuszner[25] treats peritonitis with ether and claims a reduction of 50 percent in the mortality. The ether (not more than 100 cc.) is placed in the abdomen, which is closed, with drainage.

Fredet,[26] in hypertrophic stenosis of the pylorus, in infants, performs what he terms an "extra-mucous pylorotomy"; namely, section of the muscular sphincter. Of 25 infants with varying degrees of cachexia so treated, only 2 died.

Ligation of the splenic artery is recommended by Brzsowskij[27] preliminary to the operation of **splenectomy,** in order to obtain a bloodless field.

In operations for cirrhotic ascites, Krevtovsky[28] points out that it is not necessary, in anastomosing the portal vein and inferior vena cava, totally to deprive the liver of its portal circulation. Ligature of the portal vein should be avoided and the vessel clamped only, and this has been successfully carried out in several cases.

Erdmann and Clark[29] report the removal of 48 cecal tumors by the Friedrich technic.

This consists of the removal of 10 to 12 inches of ileum, the entire cecum, the ascending colon and from one-third to one-half of the transverse colon, with end-to-end anastomosis of the rest of the bowel to the ileum.

Stone[30] recommends insertion of a segment of small intestine when direct union of the extremities of the colon cannot be effected after the resection of an extensive segment. Animal experiments have proved its feasibility.

Sistrunk[31] describes a new personal method of dealing with extensive lacerations of the anal sphincter, in which the levator ani muscle is isolated and sutured over the anterior rectal wall.

Flint[32] has treated over 200 cases of **chronic duodenal ulcer** by gastroduodenostomy, with only 2 deaths. He recommends that the angle between the second and third parts of the duodenum should be freed, rather than that between the first and second portions, to avoid vascular injury.

Horsley[33] modifies the Billroth I operation by incising the anterior wall of the duodenum for 1 to 1½ inches and uniting the stomach to the duodenum in such a way that the lesser curvature of the stomach will be in physiologic alignment with the duodenum.

To avoid peptic ulcer following gastroenterostomy, Floercken[34] recommends avoidance of clamps, especially in the jejunum. Winkelbauer[35] points to Kreidl's findings that the musculature of the intestinal wall is involved in the development of peptic ulcer, and thinks that, if postoperative ulcer is to be avoided, efforts must be made to inhibit muscle spasm at the threatened site.

MacCarthy,[36] of the Mayo Clinic, says that the relative frequency of resected carcinoma to resected or excised chronic ulcer has changed, as a result of the fact that surgeons and clinicians of experience are convinced of the impossibility of differentiating early carcinoma from simple ulcer by clinical means, including roentgenoscopy.

Nazarov[37] recommends cholecystogastrostomy for stomach ulcer as not involving any of the serious complications of gastroenterostomy and as being physiologic.

Other matters of importance are Buchbinder's[38] report on the prevention of peritoneal adhesions by the injection of hypertonic **dextrose solution**; Freeman's[39] reports directing attention to the necessity of more careful closure of the peritoneum in order to prevent rupture of abdominal incisions; and Ferey's[40] resection of the presacral nerve as a palliative measure in pelvic organ carcinoma. Villard and Labry,[41] in cases where the ovaries must be preserved in adnexal infections, recommend a retrograde, subserous removal of the tubes, which permits peritonization of the stump of the tubes and obviates removal of the ovary.

Surgery of the Genitourinary and Pelvic Organs

Patel and associates[42] recommend a lateral paraperitoneal incision in renal surgery, especially in the treatment of hydronephrosis, tumors of the kidney, horseshoe kidney, etc.

Morse and Braasch[43] caution against depending upon guinea pig inoculations in diagnosing renal tuberculosis, as in a number of proved cases such inoculations were negative.

Mattes[44] states that, by using a 40-percent sodium iodide solution, simultaneous bilateral **pyelograms** may be taken in diagnosing renal lesions, without fear of injuring the kidney.

Usually the retroperitoneal route is used in the removal of deep-lying **ureteral calculi**, but Lemberger[45] recommends the transvesical route, namely, a high section with slitting of the roof of the ureterovesical ostium and dilatation of the ostium so that it will permit the introduction of a sound and allow extraction of the calculus.

For urinary incontinence following **prostatectomy**, Morrissey[46] and Player and Callander[47] report new technics for the preservation of the external sphincter. In the latter procedure, the corpus cavernosum is encircled by a strip of the gracilis muscle dissected for the purpose. The authors claim perfect urinary control by their methods.

Davis[48] reports 107 consecutive perineal prostatectomies with only 1 death. The improved mortality is considered to be due to: (1) sacral anesthesia; (2) early surgical treatment; (3) better preoperative care; and, (4) improved hemostasis.

In female pelvic operations, Cullen[49] reports an improved method of suturing the cervix, by which leakage of infected material from the cervix is prevented during a supravaginal hysterectomy.

Wills,[51] reporting the results from **uterine cancer** operations in the Franz Clinic, in Berlin, finds that the primary mortality of the Wertheim operation was 14 percent. If patients more than 60 years old are excluded, 76 percent of the patients operated upon for cervical carcinoma are alive more than 5 years later.

Wassiliew[51] and Judin[52] report excellent functional results in several cases of artificially formed vagina. In Wassiliew's case the vagina was formed from a Meckel's diverticulum.

A method of directly uniting the lower prostatic urethra with the bladder mucosa, in Fuller's suprapubic prostatectomy, has been worked out by Roeder[53] who claims that it gives a more patent urethra.

Surgery of the Bony Skeleton and of the Extremities

Duval,[54] in commenting upon his results with Albee's operation in **Pott's disease**, believes it should not be performed when there are multiple foci of tuberculous infection, when gibbosity is very great or when cold abscesses are progressing rapidly. Albee's method is indicated only in very early cases. Duval cuts several pieces of bone from the tibia and places them between the spinous processes, over or beside the diseased focus, and sutures the aponeuroses over them.

Wreden[55] describes a new method in which the trunk weight is transferred from tuberculous vertebrae to the pelvis by means of tibial grafts.

Guillot and Dehelly[56] assert that, in Pott's disease, osteosynthesis is preferable to Albee's operation. They used osteoperiosteal grafts in 34 cases with excellent end-results.

Mezzari[57] performed a subperiosteal resection of the spinous processes in 13 cases of consolidated gibbus and concludes that the operation is harmless and valuable.

Lange[58] draws attention to the excellence of his new technic of tendon transplantation, in which the silk tendon which he uses slides in a parchment sheath. This entirely prevents adhesions about the tendon.

For instability or paralysis of the hip joint, Ober[59] and Dickson[60] describe new methods of dealing with the gluteus maximus and medius. Ober unites the gluteus maximus to the erector spinae aponeurosis and Dickson transplants the tensor fasciae femoris to the posterior spine of the ilium.

For paralyzed arm abductors, Mayer[61] substitutes the trapezius, fascia lata being used to lengthen the muscle, led through a tunnel cut in the humerus.

Fowler[62] grafted a piece of tibia in the site of a missing fifth metacarpal, with excellent anatomic and functional results.

Bunnell,[63] from experience in 105 personal cases, finds that nerve suturing in the hand and fingers is more successful than nerve sutures elsewhere in the body.

Willems[64] continues to be enthusiastic in regard to immediate mobilization in cases of joint injuries. In 20 cases he finds that disability averaged only 5 percent in non-infected cases, and 12 percent in infected cases.

Herzberg[65] finds that the hope of effecting a cure by epinephrectomy, in cases of spontaneous gangrene of the extremities, has not been realized. His critical examination of 100 cases, in which the left adrenal was removed for gangrene, by Russian surgeons, shows that the results were very poor. Stulz and Strickler,[66] however, found suprarenalectomy successful in 8 cases of endarteritis obliterans juvenilis and in Buerger's disease.

Surgical Diagnostic Methods

Only a few words can be devoted to the progress recently made in exact diagnosis of surgical conditions. Hedblom,[67] Iglauer[68] and many others write on the great value of **iodized oil** in diagnosis of bronchial and lung affections. Jarcho[69] finds that, by transuterine injection of this oil, the uterus and fallopian tubes can be visualized and suggests that this method should prove of great value in surgery of the female pelvic organs. Pritchard and associates[70] report 1,000 injections of iodized oil for investigation of the thoracic region, slight untoward effects occurring in only 6 cases.

The intravenous or oral administration of **tetraiodophenolphthalein** for the visualization of the gall-bladder continues to attract the greatest attention of surgeons, and roentgenologists, although opinions are divided in regard to the relative merits of the oral and intravenous methods. Graham[71] and associates report on 1,246 cases; in 97.28 percent the x-ray diagnosis was confirmed at operation. Graham prefers the intravenous method. Search continues for some substance less liable to toxic reactions than tetraiodophenolphthalein.

References

1.—Short, A. R. and Frazer, A. D.: *Brit. M. J.* 115:1001, 1927.
2.—Chabanier, H. and associates: *Presse Méd. Par.* 35:210, 1927.
3.—Boshamer, K.: *Klin. Wchnschr.* V. 6, No. 16, 1927.
4.—Meleney, F. L.: *J.A.M.A.* 88:1392, 1927.
5.—Holman, E: *Ann. Surg.* 85:173, 1927.
6.—Henderson, E. F.: *Arch. Surg.* 15:231, 1927.
7.—Snell, A. M.: *Arch. Surg.* 15:237, 1927.
8.—Kosyrew, A.: *Arch. f. klin. Chir.* 141:691, 1926.
9.—Bunnell, S.: *Surg. Gynec. and Obst.* 45:7, 1927.
10.—De Lamothe and Dutheillet: *Presse méd. Par.* No. 20, p. 307, March 9, 1927.
11.—Hunt, W. M.: *Southern M. J.* 20:171, 1927.
12.—Laruelle, L.: *Le Cancer.* V. 4, No. 2, 1927.
13.—Clute, H. M.: *Ann. Surg.* 84:666, 1927.
14.—Coleman, C. C.: *Virginia M. Monthly* 103: 761, 1927.
15.—Ballance, Sir C. and Colledge, L.: *Proc. Roy Soc. Med. Lond.* 20:217, 1927.
16.—Smith, D. T.: *Arch. Surg.* 14:231, 1927.
17.—Schleutter, S. A. and Weidlein I. F.: *Arch. Surg.* 14:457, 1927.
18.—Hedblom, C. A.: *Arch. Surg.* 14:389, 1927.
19.—Borchardt and associates: *Mediz. Klin.* 27: 123, 1927.
20.—Carrington, G. L.: *Ann. Surg.* 136:505, 1927.
21.—Spiegel, E.: *Wien. klin. Wchnschr.* 40:853, 1927.
22.—Richter, H. M.: *J.A.M.A.* 138:88, 1927.
23.—White: *Surg. Gynec. and Obst.* 44:358, 1927.
24.—Schönbauer, L.: *Zentralbl. f. Chir.* 103:2834, 1926.
25.—Schleuszner, A.: *Mucnch. med. Wchnschr.* 124: 1091, 1927.
26.—Fredet, P.: *J. de Chir.* 29:385, 1927.
27.—Brzsowskij, A.: *Novyj. Chirurg. Arch.* 9:335, 1926.
28.—Kretovsky: *Presse méd. Par.* 34:1398, 1927.
29.—Erdmann, J. F. and Clark H. E.: *Ann. Surg.* 135:722, 1927.
30.—Stone, H. B.: *Ann. Surg.* 138:1072, 1927.
31.—Sistrunk, W. E.: *Ann. Surg.* 135:185, 1927.
32.—Flint, E. R.: *Lancet,* 212:12, 1927.
33.—Horsley, J. S.: *Surg. Gynec. and Obst.* 44: 215, 1927.
34.—Floercken, H. and Steden: *Arch. f. klin. Chir.* 143:173, 1926.
35.—Winkelbauer, A.: *Arch. f. klin. Chir.* 143: 649, 1926.
36.—MacCarthy, W. C.: *Am. J. M. Sc.* 173:466, 1927.
37.—Nasarov, N.: *Surg. Gynec. and Obst.* 45:204, 1927.
38.—Buchbinder, I. R.: *Surg. Gynec. and Obst.* 45: 769, 1927.
39.—Freeman, L.: *Arch. Surg.* 14:600, 1927.
40.—Ferey, D.: *Presse méd.* No. 15, p. 227, 1927.
41.—Villard, E. and Labry, R.: *Gynéc. et Obstet. Par.,* 1927.
42.—Patel and associates: *Presse méd. Par.* No. 9, January 29, 1927.
43.—Morse, H. D. and Braasch, W. F.: *J. Urol.* 17:287, 1927.
44.—Mattes, A.: *J.A.M.A.* 138:17, 1927.
45.—Lemberger, W.: *Zeitschr. f. urol. Chir.* 19: 259, 1926.
46.—Morrissey, I. H.: *Surg. Gynec. and Obst.* 44: 671, 1927.
47.—Player, L. and Callander, C. L.: *J.A.M.A.* 88:989, 1927.
48.—Davis, E.: *J.A.M.A.* 88:784, 1927.
49.—Cullen, I. S.: *Surg. Gynec. and Obst.* 45:80, 1927.
50.—Wills: *Zentralbl. f. Gynack.* 51:18, 1927.
51.—Wassiliew: *Zentralbl. f. Gynaek.* 51:806, 1927.
52.—Judin, R.: *Surg. Gynec. and Obst.* 44:530, 1927.
53.—Roeder, C.: *Ann. Surg.* 86:626, 1927.
54.—Duval, P.: *Bull. Soc. nat. de Chir. Par.* 52: 1148, 1926.
55.—Wreden, R.: *Ann. Surg.* 85:35, 1927.
56.—Guillot, M. and Dehelly, G.: *Bull. Soc. nat. de Chir. Par.* 52:1144, 1926.
57.—Mezzari, A.: *Chir. organi di movimento.* 9: 193, 1926.
58.—Lange, E.: *Surg. Gynec. and Obst.* 54:455, 1927.
59.—Ober, F. R.: *J.A.M.A.* 88:1063, 1927.
60.—Dickson, F. D.: *J. Bone and Joint Surg.* 9:1, 1927.
61.—Mayer, L.: *J. Bone and Joint Surg.* 9:412, 1927.
62.—Fowler, A.: *Brit. J. Surg.* 14:675, 1927.
63.—Bunnell, S.: *Surg. Gynec. and Obst.,* 1927.
64.—Willems, C.: *Practitioner,* 118:48, 1927.
65.—Herzberg, B.: *Arch. f. klin. Chir.* 143:125, 1926.
66.—Stulz, E. and Stricker, P.: *Rev. de Chir. Par.* 65: No. 3, 1927.
67.—Hedblom, C. A.: *Ann. Surg.* 85:194, 1927.
68.—Iglauer, S.: *Surg. Gynec. and Obst.* 45:82, 1927.
69.—Jarcho, J.: *Surg. Gynec. and Obst.* 45:129, 1927.
70.—Pritchard, S. and associates: *Radiology,* 8: 104, 1927.
71.—Graham, E. A.: *Surg. Gynec. and Obst.* 44: 153, 1927.

Progress in Syphilis

By LOYD THOMPSON, M.D., F.A.C.P., Hot Springs National Park, Ark.

THE modern renaissance of syphilis may be said to have begun with the epoch-making work of Metchnikoff and Roux, who, in 1903 succeeded in transmitting this disease to monkeys. Prior to this time it was thought that man was the only animal susceptible to infection with syphilis—that all other animals were immune. But now a great field was opened up for investigation, and the experiments of Metchnikoff and Roux, were confirmed in many parts of the world. Their method consisted of inoculating the animals on the eyebrow, with material from superficial lesions of syphilitics, which produced a typical chancre at the site of inoculation and, in some instances, generalized symptoms.

Animal Experiments

At first it was thought that only the simians were susceptible to syphilitic infection, but it was soon discovered that the rabbit also could be successfully inoculated. This was of almost, if not quite, as much importance as the revolutionary work of Metchnikoff and Roux, since the rabbit, on account of the ease with which it may be handled and its inexpensiveness, makes an ideal laboratory animal. In the first experiments with the rabbit the anterior chamber and cornea of the eye were inoculated, but later the testicle and scrotum were found to develop typical lesions after inoculation with syphilitic material.

After this demonstration of the value of the rabbit as a host for the *spirochæta pallida*, much notable work in experimental syphilis was done. Among the more striking demonstrations may be mentioned the work of Brown and Pearce in showing that the rabbit infected with experimental syphilis is not, as was thought for a long time, more often than not spontaneously cured by the animal's own resistance. These workers have shown that, instead of spontaneous cure, the rabbit develops a state of latency, comparable to that in man.

A recent bit of interesting experimental work is that of Schamberg and Rule who have shown that it is possible to prevent the development of syphilis in rabbits by giving the animals a series of baths at a temperature of 113°F., within three or four days after inoculation.

With the development of the science of microscopy, and later its logical offspring, bacteriology, it became almost obvious to many workers that syphilis was an infectious disease due to a microorganism, and the search for the offending germ was begun.

Early in 1905, Siegel announced the finding of a small protozoon in the exudates and blood of patients suffering with syphilis, and gave to it the name *Cytoryctes luis*.

Siegel was very enthusiastic over his discovery, declaring that, at last, the long-looked-for germ of syphilis had been found, and to a certain extent his enthusiasm was shared by others. So much was this so, in fact, that a commission was assembled in Berlin to confirm, if possible, his findings. At the head of this work was placed Schaudinn, a zoologist, who, although a comparatively young man, already had established an enviable reputation for himself in his chosen profession. Associated with him in this work was Eric Hoffmann, a thoroughly trained syphilologist. These two scientists attacked the problem with unlimited energy, and it was not long until they had shown that Siegel's "cytoryctes" was not a protozoon but an organic artefact. And while, by so doing, they destroyed the hopes of some, they were destined to make a discovery which was to revolutionize the study of syphilis.

Discovery of the Organism

On March 3, 1905, a young woman with syphilis of ten weeks' standing was examined. A chancre of the left labium majus and a number of papules of the vulva were found. The exudate from one of the latter being placed under the microscope, Schaudinn saw a considerable number of fine spirilla, and the parasite of syphilis had been discovered.

The news of this epoch-making work soon spread over the scientific world, and before long many confirmations of it were reported. The name *Spirochæta pallida* was given to the organism by Schaudinn upon its discovery, as he considered that it belonged to the genus *Spirochæta*, the type being *Spirochæta plicatilis*, described by Ehrenberg in 1838. Later he renamed it *Treponema pallidum*, but in the meantime Vuillemin proposed that the term "*Spironema*" be applied to the new organisms. Due to these conflicting names, as well as to the doubtful taxonomic place of the organism, a great deal of confusion has arisen concerning the proper terminology.

However, in view of the fact that *Spirochæta pallida* was the term originally applied to the parasite by its discoverer, and that this term is the one used by the majority of syphilographers, including such authorities as Metchnikoff, Ehrlich, Neisser and Uhlenhuth, and further, that it has not been shown that the organism does *not* belong with the general *Spirochæta*, it would seem that the proper appellation is *Spirochæta pallida*.

As has been stated, the first syphilitic lesion to give up the secret of its etiology was a papule of the vulva. Since that time the "pale spirochete" has been found in every class of syphilitic lesion and in all organs and tissues of the body. It has been found in chancres and syphiloderms; in gummas and in condylomas; in the heart and bloodvessels; in the liver, spleen and pancreas; in bones; in the brain; and in the blood and lymph. It has even been found in the urine, in the spermatic fluid of men, and the milk of women.

The Wassermann Test

However, except in the early stages of the disease, the finding of the causative microorganism is of little or no value in the diagnosis of syphilis. It remained for Wassermann, Neisser and Bruck, in 1906, to utilize the phenomenon of complement fixation, discovered in 1901 by Bordet and Gengou, in developing a diagnostic aid known almost universally as the Wassermann reaction, which has become one of

the most valuable clinical laboratory tests of all time. Since its original inception the Wassermann test has been modified by many workers, and for a time it almost seemed as if there were nearly as many methods of diagnosing syphilis serologically as there were serologic laboratories. This brought inevitible confusion and discredit to the test. However, after a time, order seemed to overcome chaos, and, particularly since the advent of the Kolmer technic, which has been adopted by a great many laboratories, the Wassermann test has come into its own.

Many workers, beginning with Michaelis, twenty years ago, have felt that the Wassermann test was too cumbersome, and that a technic based upon precipitation, rather than complement fixation, would greatly simplify the serum diagnosis of syphilis. A number of such precipitation tests were devised, but it was not until 1922, when Kahn described his technic, that any great amount of interest was aroused. The Kahn technic certainly is simple, and in the hands of most workers who have given it a fair trial has proven quite reliable, so much so, in fact, that a number of laboratories have adopted it and discarded the Wassermann reaction. However, it appears that the vast majority of laboratory men, while admitting the value of the Kahn test, use it simply as a check on the Wassermann.

In 1926, Kline and Young introduced a microscopic precipitin test, using the Kahn antigen, for which they claim particularly useful results where only small quantities of serum are available and where quick testing for syphilis, before emergency transfusions, is desirable.

Arsphenamines and Bismuth

The next great advance in the field of syphilis, and probably the greatest of all, was the development of salvarsan, or arsphenamine, by Ehrlich, in 1910. For four centuries physicians had relied upon mercury, in one form or another, for the treatment of this disease. The term treatment is used advisedly, for it is extremely doubtful if mercury very often cured syphilis. This is shown by the great rarity of second infections, in cases treated by mercury alone. But with the advent of the arsphenamines—for there have been several drugs produced allied to the original "606" —numerous cases of second infection have been reported, and even one probable case of the third infection has been observed.

Arsphenamine came out of Germany; but out of France came the next greatest antisyphilitic. It was in 1919 that Sazerac and Levaditi published their researches on the use of bismuth compounds in the treatment of syphilis. Since that time the value of these compounds has been demonstrated by numerous workers, and their popularity has increased by leaps and bounds, until today, as intimated above, bismuth ranks second to the arsphenamines as an antisyphilitic, taking precedence over the time-honored mercury.

Neurosyphilis

Although intraspinal therapy, in the treatment of the various types of neurosyphilis, was practiced as early as 1901, by Schachmann, who treated four cases with injections of 1 cc. of a 1-percent solution of mercury benzoate, it was not until the publication of the work of Swift and Ellis, in 1912, that this method of treating neurosyphilis became at all popularized. Since that time numerous methods of intraspinal therapy have been devised, and undoubtedly have their place in the armamentarium of the modern syphilologist.

Tryparsamide, the sodium salt of N-phenylglycineamide, was developed at the Rockefeller Institute in 1919 and introduced to the profession for the treatment of neurosyphilis in 1923. A great deal was written and said about the dangers of this drug, particularly of the dangers of its producing optic atrophy. However, after more than four years of use, its efficacy has been proven, and in selected cases it may be used without any more danger than that following the administration of the arsphenamines.

As early as 1887, Wagner von Jauregg commented upon the reaction of concomitant fevers in psychoses. In his first experimental work in the treatment of general paresis, Wagner-Jauregg employed Koch's old tuberculin, and in 1909 reported favorable results. His work was confirmed by Pilez. Later, Wagner-Jauregg used typhoid vaccine to produce the febrile condition, but soon reached the conclusion that the best results were to be obtained only when there actually was present a concomitant infectious disease. Inoculation with tertian malaria seemed to offer the greatest promise, owing to the comparative ease with which the plasmodia may be destroyed, and in 1917 Wagner-Jauregg began his inoculations of paretics with

these organisms. In 1922 he reported on 200 patients with general paresis who had been treated in this manner, 25 percent of whom had been able to resume their former occupations. For this work Wagner-Jauregg was awarded the Nobel prize in Medicine.

Numerous investigators, both in this country and in Europe, have employed this interesting method of therapy and the reports of complete cure—that is, cases in which complete remission enabling the patients to resume their former occupations—obtained, vary from 23.7 percent, in Nonne's 240 cases, to 31 percent, in Kirchbaum and Kaltenbach's 196 cases. Wagner-Jauregg states in his latest report that, in early cases, nearly 100 percent of cures should be obtained, and that three of his oldest cases had had complete remissions for six and one-half years.

Problems Still Awaiting Solution

While, as has been shown above, a great deal of knowledge concerning this ubiquitous disease has been gained since that day, now nearly a quarter of a century away, when Mechnikoff and Roux first succeeded in inoculating a lower animal with syphilis, much yet remains to be learned.

What of the origin of syphilis? Was it known to the ancients? Or did Columbus' men contract it from the native women of the island of Espiñola and carry it to Europe on their return?

Are there multiple strains of spirochetes, one tending to produce the more severe skin manifestations; another having a special affinity for the nervous system?

What of paternal transmission? Does it ever occur, or must the mother always be the one to pass the dread infection to her unborn babe?

The nature of the Wassermann test is still unknown. Why should the extract of beef heart produce complement fixation in the presence of syphilitic serum, and for practical purposes in the presence of no other serum? And the so-called Wassermann-fast cases; what do they mean? Must a patient with such a Wassermann reaction have treatment for the rest of his life, regardless of the absence of clinical signs?

And finally, and probably more important than all others, when is a syphilitic patient cured?

These are some of the problems of syphilis which remain to be solved, and when they are solved the great red plague will not be so dreaded as it is today.

Thompson Bldg.

Progress in Urology*

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MUCH can be written on the recent advances in the various subjects that come within the scope of Urology but space forbids taking up more than a few essentials, hence conclusions of various authors will be given as briefly as the subject permits, each subject being taken in its logical sequence, in order to give a comprehensive idea of some of the progress made to date.

Pyelography

Invention is the key-note of urologic progress, for without our modern apparatus for visualization of the urinary tract, our progress certainly would not have been so great nor results so satisfactory. From the first crude cystoscope fashioned by Nitze, in 1879, to the present-day scopes which may be sterilized by boiling, as can be done with the new Leitz cystoscopes, our progress has kept step with these inventions and due credit belongs to the various inventors who have contributed to this progress.

Cystoscopy has a definite place in surgery, and can often clear up a doubtful diagnosis, thereby making surgical indications more definite and results more satisfactory than would otherwise be the case were ordinary methods of diagnosis alone depended upon.

Tuffier, in 1897, made the first attempt to render the urinary tract opaque. Schmidt and Kolischer used catheters containing wires in 1901. Fenwick employed bougies impregnated with opaque substances in 1905. This was the forerunner of the present-day lead catheters. In 1904, Klose injected the kidney pelvis with an emulsion

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of bismuth, and Voelker and Von Lichtenberg employed a solution of colloid silver in 1906. Döderlein and Krönig used an emulsion of xeroform in olive oil in 1912. Cameron introduced sodium iodide in 1918 and Weld sodium bromide the same year.

In order properly to understand pyelographic interpretations, normal variations must be understood, and proper technic be used to insure against mistaken diagnosis, resulting from filling defects, indefinite radiologic shadows, or obscuring of the urinary tract because of intestinal gas or feces present in an improperly prepared bowel.

In interpreting pyelograms, it is well to remember that the kidney pelvis is a muscular organ capable of expansibility. Some normal pelves have a capacity of 15 to 20 cc. whereas others may not hold more than 3 or 4 cc. The estimated average is about 6 to 8 cc. According to Casper[1] a renal pelvis may be injected with 8 to 10 cc. or more of pyelographic medium without distress, yet at another time, 2 to 3 cc. may cause serious discomfort.

Tyler[2] recognizes two general types of normal pelvis; an ampullary type, which is most common, and a bifid type. Polkey[3] quotes Lewis and Mark in claiming that "The outline of the normal pelvis will vary greatly, depending on the number, depth, breadth and contour of its calices, as well as the extent to which the free wall extends." Hyrtl believed that no two pelves are alike. Robinson examined 50 pelves by moulds and radiographs and found no two alike. Cross[4] watched pelographic results by fluoroscopy in 200 cases and found that pain could be due to the position of the catheter. When the catheter lay in a calyx a small amount of injection would cause pain, and if below the pelvis more pain was apt to occur. He found that the severity of pain was inversely proportional to the diseased condition of the kidney.

Mistaken pyelographic diagnosis may easily be made if one is not familiar with the normal variations. Again, an apparently normal pyelogram may not rule out a possible neoplasm, too small or so located as not to influence the pyelographic contour. On the other hand, elongation of one or more of the calices, often observed in normal kidneys, may be suggestive of neoplasm. However, the contour of the minor calices is clear-cut in the normal in contrast with marked deformity in cases of neoplasm. Incidentally, neoplasms are invariably unilateral.

Incomplete filling of the pelvis and calices may produce apparent deformities which are apt to be mistaken for neoplasms and cortical necrosis; whereas, on the other hand, in case of insufficient distension, hydronephrosis, anomalies or lesions may be overlooked.

Diagnoses from ureterograms are not always conclusive, for many socalled strictures are but momentary constrictions resulting from the vermiform movement or contraction wave of the ureter. However, Hunner and others have demonstrated definite strictures in a large percent of their cases.

Neoplasms usually produce the greatest degree of pelvic deformity and, according to Braasch and Hager,[5] are manifested by: (1) elongation of one or more of the calices or of the true pelvis; (2) encroachment of the pelvic lumen causing, (a) flattening of the pelvic outline, (b) narrowing of the individual calices, (c) obliteration of the true pelvis, (d) obliteration of one or more calices, and (e) complete occlusion near the uretero-pelvic juncture; (3) abnormal position of renal pelvis; (4) secondary pyelectasis; and (5) deformity at the uretero-pelvic juncture.

Authors do not fully agree on the value of pyelography in **renal tuberculosis.** Eisendrath claims it is of little value, whereas Braasch and Hager say that "pyelonephritis, as a result of tuberculosis, produces peculiarities in the pelvic deformity which are typical of the disease . . . . the changes in pyelogram accompanying tuberculosis are: areas of cortical necrosis, dilatation of the pelvis, obliteration of one or more calices, and stricture of the ureter. Dilatation and stricture in the ureter are presumptive evidence, while areas of cortical necrosis, as seen in the pyelogram, are practically pathognomonic of renal tuberculosis."

Kearns[6] reports on a series of 15 cases of proven renal tuberculosis which were operated upon. The most constant finding in the series was a dilatation of the calices, together with ragged or "moth-eaten" borders.

From 14 cases of renal tuberculosis, Howard[7] draws the following conclusions:

> "1.—In early cases in which lesions consist of discrete tubercles in the parenchyma or pelvis, the x-ray is negative in all respects.

"2.—X-ray is essentially negative in all socalled closed cases; although the kidney parenchyma may contain large abscesses, and the pelvis and ureter may be considerably distended, yet the papillae may retain their normal outlines. There is nothing pathognomonic of tuberculosis.

"3.—Changes revealed by the pyelogram in tuberculous pyelitis are of only relative significance. In hydronephrosis, the shadows show distinct regular borders, but in some instances faulty mixture of the media and urine may be confusing. There is little to distinguish the picture from pyonephrosis.

"4.—In cases with ulcer and caseation, the ureter is straightened and dilated and the pelvis shows dilatation, with an outline of a segment of a cauliflower, but it is often impossible to determine accurately the extent of the disease. Cavities filled with pus are not seen. Simple hydronephrosis, pyonephrosis and stone may produce similar pictures."

Pyelography, therefore, according to Howard, is only of comparative value. He agrees with Marion that pyelography is of little value in tuberculosis of the kidney.

Eisendrath[8] enumerates a few benefits of pyelographic study as follows:

1.—In the differentiation of renal or other retroperitoneal neoplasms from those of intraperitoneal viscera.
2.—Renal and ureteral calculi.
3.—Renal tuberculosis. (He questions the value of pyelography in tuberculosis.)
4.—Hydronephrosis or pyonephrosis.
5.—Ureteral strictures.

A New Fluorescent Screen Emulsion

Hirsch[9] has recently discovered a fluorescent screen emulsion that may be spread on paper or other substances permeable to radiation, which he claims replaces either the fluoroscopic or radiographic methods now utilized for kidney examination at the operating table and which is of great surgical value in the removal of renal calculi.

Etiology, Pathology and Treatment

Epididymitis: Beutel[10] reports 10 cases with epididymitis which he claims were cured by application of ultraviolet rays, with a distance of 4 inches and duration of 5 minutes exposure. Before beginning treatment, the scrotum was painted with equal parts of the tinctures of aconite and iodine.

Bladder Neck Obstructions: Malony[11] contends that, although upper urinary disease can be diagnosed and treated by present-day equipment, obstructions at the bladder neck are apt to be inaccurately diagnosed through cystoscopic examination. The cystoscope straightens out the urinary canal, changing the condition existing at the vesical neck, especially the anatomic curves present, therefore, the probability of mistaken diagnosis. Realizing the importance of the vesical neck as the outlet of the entire urinary tract, Malony emphasizes a more thorough study, which he claims can only be done by the method he has used for years at the Malony Urologic Hospital, San Francisco. He performs a simple cystotomy, inserting a catheter to allow fistula formation, through which the cystoscope is introduced. The bladder is filled by means of a soft rubber urethral catheter.

Malony is quite enthusiastic over the suprapubic cystotomy cystoscopy method of examination and treatment. He favors the use of the high-frequency current as the best means of treatment of vesical diseases and says that he has now perfected a new electrode for their treatment under observation and with an accuracy that is difficult to excel.

Prostate: Holloway and Von Lackum[12] believe that a large percentage of cases of prostate gland infection are without a previous history of gonorrheal infection. They contend that prostatic infection is a focal point which is responsible for numerous local and general symptoms and that it is latent and can be diagnosed only after repeated examinations of the prostatic fluid. They maintain that systematic treatment of the prostate and seminal vesicles, by the usual methods, vigorously carried out, is, in most instances, followed by definite improvement.

Player[13] discusses the prostate and its influence on pain in the small of the back which, until recently, was attributed to static conditions and nerve involvements in certain cases of arthritis.

Rosenow[14] has shown that certain bacteria have selective action and that different types produce arthritis, synovitis, myalgia and myositis. Eradication of the foci in the prostate and seminal vesicles, as well as the teeth and tonsils, will often clear up the other conditions. He recommends the use of vaccines.

Diverticulosis of the Bladder: Inasmuch as diverticulosis of the bladder has been and is the subject of much controversy among urologists, a brief of Polkey's[15] ex-

haustive study of this subject is appropriate.

Diverticula of the bladder were first described by Albucasis, in the 11th century.

Jean Dominique Sala observed a hernia of the bladder in the year 1520.

Various early writers have described double bladders, or bladders with sacs, but Morgagni (1683-1771) was the first writer to recognize the true nature of diverticula. The term "diverticulum" was first used by Heister in 1750.

Rose[16] (1927) points out the fact that faulty development of the bladder musculature in certain areas weakens the wall, which, together with increased pressure in the bladder favors diverticulum formation. He states, "Bladder diverticula are congenital to the extent that a loose fibrous tissue pathway must be present through the bladder wall before the acquired factor; namely, a raised intracystic pressure, can herniate the mucosa . . . . the theory of herniation can account for all types of bladder diverticula except ureteral buds and urachal remnants."

Hinman[17] classified the opinions of various writers as follows:

1.—Favoring congenital and acquired forms with a double etiology: Englisch, von Elberts, Fischer, Brongerema and Judd.
2.—Favoring congenital etiology: Cabot, Israel, and Hofmokl.
3.—Favoring acquired etiology; Lower, Lerche, Wagner and Sarralach.
4.—Favoring congenital and acquired as active factors in all forms of diverticula: Young, Kelly and Burman, Cholzoff and Sugimura.

In 1416 cases of bladder diverticula mentioned by Lurz[18], 39 were in females; whereas Durrieux noted 118 cases in males and 9 in females. Although, prior to 1906, few cases of diverticula were reported, Hyman[19] (1923) estimated that 600 cases were reported, and Lurz, in 1925, collected 1407 cases and added 9 of his own. In 300 autopsies reported by Randall, 6 percent showed evidence of urinary obstruction, and 54, or 20 percent, had median bar enlargements. Young, in 156 cases of median bar obstructions, found 23, or 15 percent, with diverticula. In 132 prostatic cases, Hinman noted diverticula in about 6 percent of them.

Although diverticula may occur in any part of the bladder, Hinman found that the majority were located near the ureteral openings. Ninety-eight of 135 cases of single diverticulum lay near the ureteral orifice, and 25 of 28 cases of multiple diverticula lay near both ureters.

Operative Procedures

Both palliative and radical measures are dependent upon the condition of the patient and the type and location of the diverticula. Most urologists, however, favor radical treatment, when indicated, as early as possible, the choice of operation being determined by the location of the sac.

Howard[7] draws the following conclusions concerning the surgical treatment of diverticula of the bladder:

1.—Nearly every diverticulum with marked clinical symptoms is associated with prostatism—either hypertrophy or contracture of the neck of the bladder. Rarely, the symptoms may be caused by urethral obstructions.

2.—Surgical relief of obstruction is necessary in almost every case.

3.—Excision of the diverticulum is indicated in cases of well developed sacs of moderate or large size, if drainage is poor.

4.—Advanced degenerative changes in the cardio-vascular system and kidneys may render excision of the sac inadvisable, unless the cystitis is intolerable.

Incrusted Cystitis: Hagen and Magath[20] claim that in incrusted cystitis there is a deposition of inorganic salts in the mucous membrane of the bladder wall from an alkaline urine, caused by a secondary invader, a gram-negative bacterium, known as the *Salmonella ammonae*, which renders the urine alkaline, thus favoring the precipitation of calcium, magnesium and ammonia salts on any type of bladder lesion. Incrusted cystitis is most common in women.

Bladder Tumors: Martin[21] thinks that deep x-ray treatment stimulates the rate of growth of carcinoma of the bladder. He says he has never seen a cure of cancer of the bladder by deep x-ray treatment, regardless of several cures reported in France. In his paper he discusses a case in which the growth, when first examined, was the size of a dime and was treated by deep x-ray. A little improvement was noted at first; later it was aggravated until cystotomy was necessary for the relief of symptoms. The patient died in a year and autopsy showed a large, malignant type of carcinoma in the bladder.

Bumpus[25] advises frequent examinations and treatment of bladder tumors. He does not believe radium alone is successful in the treatment of malignant disease of the bladder. He found that radium could be used in conjunction with either fulguration or surgery; but radium, followed by surgery, gives poor results. If radium has been applied to malignant growths, the treatment should never be changed to surgery. He claims that tumors, of a low degree of malignancy and too extensivė for fulguration or excision, should be treated with the cautery. Cauterization is not applicable to tumors of a higher degree of malignancy. These are best treated by excision or resection.

Barringer[26] classifies carcinoma of the bladder into two groups; cases of papillary carcinoma and those of infiltrating carcinoma.

Of 23 of his cases of papillary carcinoma of the bladder, he reports that the tumor was removed in 15. In 6 the result has not yet been determined; one patient is dead and one dying. Of 61 patients who had an infiltrating carcinoma, 18 are well and 30 are dead or dying; the result in 13 cases is undetermined. A large majority of both papillary and infiltrating carcinomas involved both trigone and bladder neck. Of 15 cases of papillary carcinoma, the tumor was removed intravesically in 12 cases, and suprapubically in 3 cases. Of 18 cases of infiltrating carcinoma, the tumor was removed intravesically in 6 cases and suprapubically in 12 cases. Barringer claims the operative mortality of suprapubic implantation of radium, in the filtrating carcinomas, was less than 2 percent.

Professor Joseph, Berlin,[24] treats inoperable cases of carcinoma by chemotherapy, or the local application of trichloracetic acid, to coagulate the tumor and ameliorate the symptoms.

Corbus[28] destroys the tumor by means of electrocoagulation.

Histologically, the largest percentage of bladder tumors is of the adenocarcinomatous type, which according to Wintz[28], shows the least radiosensibility; hence a dose of 110 percent of the unit skin dosage, over the entire area affected, is necessary if any results are to be expected. He says, "It is a fact that the treatment of carcinoma of the bladder with roentgen rays has aroused but little confidence as yet, and, since the number of cases which have been cured is exceedingly small, the lack of confidence seems to be justified to some extent."

Wintz recommends the *coppering procedure* for treatment of bladder carcinomas. He fills the bladder with a 3-percent copper-selenium solution. An insulated copper wire, made by putting a wire through a catheter, is introduced into the bladder, care being taken that the wire does not come in direct contact with the bladder wall. An indifferent electrode, made of clay (tonkothode) is placed on the abdomen. A current of 20 to 25 milliamperes is applied for 7 to 8 hours depending upon the extent of the carcinoma. If the carcinoma is on the posterior wall of the bladder, the indifferent electrode is placed in the rectum or vagina.

Ullman[27] reports two postmortem cases to show the effect of the *colloidal lead* treatment for carcinoma. He is of the opinion that "colloidal metallic lead may exert a destructive action on malignant tissue, but at the same time, it is so toxic to the organism as a whole that its use is open to question.

Explosion in the Bladder During Electrocoagulation: Cassuto[23] states that, while treating the middle lobe of the prostate by electrocoagulation, an explosion occurred in the bladder. A subsequent cystoscopic examination revealed deep fissures in the mucosa but the musculature was intact. The cause of the explosion was explained by Cassuto as due to an accumulation of gas, formed by cellular disintegration of the tissues, which was ignited by the electricity; whereas, Pasteau believes the gas was formed by the disintegration of the water by the electricity.

Foreign Bodies in the Bladder: Almost anything can be found in the bladder. Stevens, I believe, once said that anything, from a crucifix to a china doll, may be found in the female bladder.

Duncan[29] reports a case of a man in whose bladder was found a 10 cc. perfume bottle, filled with perfume. The patient had an external urethrotomy for stricture, leaving a permanent opening. Inasmuch as the urinous odor was a source of annoyance to the patient, he purchased the perfume for a deodorant. He claims that the bottle accidentally got into the bladder, thus necessitating a suprapubic cystotomy for its removal.

Tuberculosis of the Bladder: Blanc[30]

treats reno-vesical tuberculosis with methylene blue and is of the opinion that this dye is a diagnostic factor in cystitis of non-tuberculous origin.

Mann and Papin (Paris), treat tuberculosis of the bladder by local injections of 1-percent methylene blue, as well as by its oral administration. They report very satisfactory results and claim the bladder capacity is increased, the irritation lessened and pain ameliorated.

Tumors of the Testes

Dean[31] draws the following conclusions in the treatment of teratoid tumors of the testes:

1.—*Teratoma testis* is a disease associated with high mortality. In the majority of cases, inoperable metastases occur relatively early.
2.—Because the differential diagnosis is difficult, all intrascrotal swellings must be carefully examined, with the possibility of malignant disease in mind. Serologic and roentgenologic data are frequently of value.
3.—A favorable prognosis depends upon prompt as well as efficient treatment.
4.—Simple orchidectomy alone usually does not give relief.
5.—Preoperative irradiation of the primary tumor is most essential. Microscopic evidence demonstrates that the growth properties of the malignant cell may be destroyed. In cases given such preliminary treatment, the mortality was 25 percent lower than in those not given such treatment.
6.—With adequate x-ray facilities at hand, the radical dissection of the lumbar and pelvic lymphatics seems to be an unnecessary surgical procedure.
7.—The high voltage x-ray has been found to possess certain advantages over the radium pack and no disadvantage has been noted in its use.
8.—Of 7 patients with operable tumor who were treated, 5 (71 percent) are living and apparently free from the disease. Of 49 patients who were first seen with inoperable metastases, 10 (20 percent) are now free from the disease. External irradiation alone was used in this group of cases.
9.—While the number of socalled 5-year cases so far obtained has not been large, the fact that practically every patient was benefited to an appreciable degree suggests that, when the technic and management become more nearly perfect, the results will demonstrate more clearly the efficiency of physical agents in the treatment of teratoid tumors of the testes.

Ureteral Stricture: Martin and Rogers,[33] in their experimentation with dogs, found that 75 milligram-hours of radium, applied in steel needles near the ureters, produced complete stricture formation and hydronephrosis. Partial stricture resulted with a radium dosage of 54.3 miligram-hours.

Ureteral Calculi: Rosenburg[33] relates a new method of removing ureteral calculi by means of diathermy applied to the sphincter. He claims to loosen the stone entirely out of its constriction without bleeding.

Stirling[34] claims that 90 percent of all ureteral calculi may be demonstrated by careful roentgenography, plus contrast pyelo-ureterography. He says that approximately 75 percent of ureteral calculi become impacted in the lower third of the ureter where it is difficult to reach them surgically. He has devised a new ureteral forceps for removing this type of calculus.

Essential Hematuria: Gottlieb[35] claims that essential hematuria is a misnomer and prefers to call it bleeding from a focal point of infection. Huchel reports two cases of socalled essential hematuria, which had minute lesions in the cortex; one a rupture of a varix and one a rupture of an arcuate artery.

Pyelitis

During the period from January 1910 to January 1926, the Mayo Clinic observed 2040 patients with chronic pyelonephritis, of whom 68 were operated upon. Stricture was associated with 18 cases which required surgery; hydronephrosis, of such a degree as to necessitate surgery, was present in 3 cases; renal calculus was present in 30 of 2000 cases of chronic bilateral pyelitis, in 12 of which surgery was done. In one case of persistent hematuria, surgery revealed a small hypernephroma in the upper pole of the kidney. They did not find that palliative nephrorrhaphy, decapsulation, pyelotomy or nephrotomy was of any value in the treatment of pyelonephritis.

Armitage[36] reports 2 cases of toxic nephritis in which he claims to have obtained good results by decapsulation.

Eberbach[37], in discussing the pathogenesis of renal tuberculosis, says, "Investigation of the anatomic, clinical and experimental aspects of hematogenous, chronic, renal tuberculosis, points to the primary arrest of the bacilli in a glomerulus. . . . Inasmuch as the lesion develops gradually, in the cortex, and in its early stages is almost invariably single and unilateral, and from here develops more rapidly as the medullary portions are

involved, it seems logical to believe that only a single bacillus-laden embolus, which has passed through the lung capillaries, lodges in a glomerular capillary tuft."

Macomber[38] reports a case of repeated miscarriage due to pyelitis. After the pyelitis was cleared up, the woman gave birth to a child. Curtis[39] also had pointed out the relationship of the frequency of abortion in cases of pyelitis and other focal infections.

In the treatment of pyelitis, Mathe[40] injects a bouillon filtrate of the infecting organisms, at intervals, into the kidney pelves, bladder and urethra. He claims to have treated chronic pyelitis, at St. Mary's hospital in San Francisco, in this manner with good results.

In Austria, in addition to renal lavage, acute pyelitis is treated by intravenous injections of neoarsphenamine. Cylotropin, a preparation containing 40 percent urotropin, is also used intravenously.

Hydronephrosis

In producing experimental hydronephrosis in rabbits, Hinman and Hepler[41] arrived at the following conclusions:

1.—Complete obstruction of a ureter, in rabbits, was followed by progressive development of hydronephrosis, the degree of dilatation being proportional to the duration of the obstruction.
2.—Unilateral splanchnotomy caused diuresis on the side operated upon, due to intrarenal vasodilation and increased blood flow.
3.—The performance of unilateral splanchnotomy, after complete ligation of the ureter, had no influence on the rate of development of hydronephrosis.
4.—Pressure on renal arteries not only decreased the blood flow but diminished intrarenal pressure and reduced secretion.

The authors believe that undue importance has been given to urinary back-pressure as a factor in determining the degree of hydronephrosis.

White[42], in studying 37 cases of hydronephrosis in which the health had been ascertained prior to onset of the symptoms, found that 32, or 86.4 percent, gave a history of previously-existing acute or chronic infections. In 12 cases, gastrointestinal disturbance was antecedent—8 were gastrointestinal and 4 acute appendicitis. In 7 cases, symptoms suggestive of pyelitis had an onset following, or during, pregnancy. Hundley[43] found hydronephrosis in 18 out of 27 cases of pyelonephritis of pregnancy.

Hypernephroma

In the *Annals of Surgery*, Bothe[44] gives the various theories advanced relative to the etiology of hypernephromas as follows:

1.—They originate in adrenal rests.
2.—They are alveolar sarcomas, with no relation to cell rests.
3.—They are endotheliomas, taking origin from the endothelial lining of the perivascular lymph spaces.
4.—If benign, they may be classified as adenomas; and if malignant, as carcinomas.
5.—They are derived from the epithelial lining of the uriniferous tubules.
6.—They develop from the endothelial cells lining the blood vascular spaces.
7.—They originate from islands of embryonic nephrogenic tissue.

Bothe is of the opinion that inclusion of suprarenal cells within the metanephros *anlage* may be the cause, as he finds that all tissues other than the metanephros, especially those that develop from the mesonephros, mesonephric duct, and genital ridge, are susceptible to such cellular inclusions.

Renal Tests

Kearns[45] gives a very interesting resumé of kidney function tests. He states that the capacity of the kidney for work is better measured than that of any other involuntary organ of the body, inasmuch as the urine furnishes an easily manipulated solution as an indicator of the kidney function.

The kidney is of mesodermal origin, thus differing from all other secretory glands of the body, which are of endodermal derivation. The kidneys are supplied by two sets of capillary beds, glomerular and tubular, which furnish the blood supply. They manufacture a highly concentrated solution of salts from a dilution of the same salts in the blood. Cushny estimates that the excretion by the kidneys of 100 cc. of urine requires 500 kilograms of work.

According to the modern theory of urine, it is formed by glomerular filtration, after which the vital function of the tubular cells is to reabsorb the water and salts from the dilute filtrate of the capsule and glomerulus. Certain salts of no further use to the body are excreted and not reabsorbed by the tubules, so long as they have any concentration in the blood. These are called non-threshold substances. Urea and the sulphates are not reabsorbed at all from the glomerular filtrate, thus the urea of the urine is concentrated 60 times over that of the blood; uric acid 22 times; and chlorine 1¼ times in the normal urine.

Glucose is completely reabsorbed by the tubules so long as the blood concentration remains at a fixed level.

The kidneys receive 500 liters of blood a day. The whole blood of the body passes through the kidneys every few minutes. Thirteen percent of the blood fluid, or about 62 liters, passes through Bowman's capsule every 24 hours, approximately 61 litres of which is reabsorbed. According to Cushny, each tubule absorbs about 0.16 cc. per hour.

Recently, Richards and his co-workers demonstrated that certain units of the kidney glomerular system rest, while others work in relays. The number of glomeruli at work at any time is dependent upon vasodilation and vasoconstriction of the capillaries supplying these units, which in turn is dependent upon the volume and composition of the renal blood flow and the chemical and nervous influences acting upon the renal circulation.

In the mechanism of filtration several factors are considered:

1.—Difference in pressure, causing the filtrate produced by blood pressure, critical pressure being 30 to 40 mm. of mercury.
2.—Character of filter determines the filtrate. The capsule is normally impervious to proteins, but pervious to other constituents of the blood.
3.—Character of fluid determines the readiness with which it passes through the filter. If blood contains substances that cannot pass through the filter and exerts osmotic pressure in opposition to the filtering force, the rate is reduced.

Kidney function is, therefore, essentially a process of filtration and selective reabsorption.

The discovery and application of various kidney tests has enabled us to estimate the kidney function individually and collectively, thereby obtaining more definite knowledge of kidney conditions and, incidentally, reducing the operative mortality.

In America, the **phenolsulphonephthalein** test is universally used. Although not entirely satisfactory, as shown by Braasch, because of its affinity for some of the tissues, yet it gives a very satisfactory idea of the kidney function.

Phenolsulphonephthalein was discovered by Remsen, but Rowntree and Geraghty were the first to use it as a kidney function test, in 1910.

In France, the estimation of urea elimination by the kidneys is utilized in studying kidney function. Papin is of the opinion that it is superior to the dye tests, inasmuch as urea is normally excreted, hence can be more accurately determined.

In Germany and Austria, the indigo-carmine test is generally used. Although it facilitates catheterization in certain cases, it is more difficult to estimate by a colorimeter.

The test for nitrogenous waste products was first used by Widal about 15 years ago and gives very important information of the renal efficiency, as well as a timely warning of a bad operative risk.

Okerblad[41] recommends the injection, intravenously, of 0.25 Gm. of **creatinine**, with 1 cc. phenolsulphonephthalein. He determines the excretion of both and compares their relative values. During the first 10 minutes after injection, the urine contains at least 3 times the normal secretion of creatinine. He states that it has all the qualifications of the "P.S.P." test, but believes it more sensitive and accurate, and, after completing 1000 consecutive tests, he claims it has advantages in kidney diagnosis not hitherto made use of.

Corkill[47] noted that the non-protein nitrogen test was more sensitive than that for blood urea. He also drew attention to the fact that the salivary nitrogen is approximately the same as that in the blood, and hence proposed the estimation of the non-protein nitrogen of the blood by means of the salivary test, which is both simple and rapid. Five cc. of saliva is titrated with 5-percent silver chloride solution, and the end point estimated by the brown color obtained with the addition of sodium carbonate, 20 to 50 cc. of which is required, corresponding to 20 to 40 milligrams of blood urea.

Loewenstein[44], Vienna, has demonstrated that avian tuberculosis, although pathogenic to man, is non-pathogenic to the guinea pig, hence the guinea pig test is unreliable in this type of tuberculosis.

Coope and Jones[48] are of the opinion that the urea concentration test alone is not of much value, but that the chemical blood examination is of greater value in arriving at a diagnosis than any test involving urinalysis.

Jones[50] reports a new modified dilution method for searching for tubercle bacilli in the urine, the technic of which is as follows:

1.—Urine obtained from badder or kidneys by catheters.

2.—Tube of urine centrifugalized, at low speed, for 2 to 3 minutes to remove bulk of pus and detritus.

3.—Supernatant, cloudy fluid, containing few pus cells and bacilli, poured off. One-half discarded and remainder poured into a second centrifuge tube.

4.—To half-filled tube of urine, add ¼ volume of 95 percent alcohol and ¼ volume distilled water; mixture centrifugalized at highest speed for 45 minutes, until clear.

5.—Supernatant fluid is discarded.

6.—Smear made from sediment.

7.—Stain by Ziehl-Neelsen method.

8.—Centrifuge must be electrically driven, making 2000 to 2100 revolutions per minute, with 4 tubes.

Biblography

1.—Caspar, Prof. Leopold: A Critical Study of the Pyeloureterogram. *Urol. and Cut. Rev.* 31:19, Jan., 1927.

2.—Tyler, A. F.: Pyelography as an Aid to Genitourinary Diagnosis. *Urol. and Cut. Rev.* 31:49, Jan., 1927.

3.—Polkey, H. J.: The Normal Kidney Pelvis. *Urol. and Cut. Rev.* 31:339, June, 1927.

4.—Cross, W. W.: The Fluoroscope As an Aid to Making Pyelograms. *J. Urology* 16:37, July, 1926.

5.—Braasch, W. F. and Hager, B. H.: Ureteropyelography. *Surg. Gynec. Obst.* 44:433, April, 1927.

6.—Kearns, W. H.: Pyelography in Renal Tuberculosis. *Urol. and Cut. Rev.* 31:479, August, 1927.

7.—Howard, H. H.: Progress in Urology. *Boston M. and S. J.* 195:673, September, 1926.

8.—Eisendrath, D. N.: Recent Advances in Urology. *Illinois M. J.* 49:406, May, 1926.

9.—Hirsch, I. S.: A New Type of Fluoroscopic Screen for Use in Kidney Operations. *Am. J. Surg.* 3:51, July. 1927.

10.—Beutel, G. P.: The Ultraviolet Light in Urology. *Urol. and Cut. Rev.* 31:157, March, 1927.

11.—Malony, Martin: Diagnosis and Treatment of Deformities and Obstructions of the Vesical Orifice with a New Type of High Frequency Electrode. *Urol. and Cut. Rev.* 3:407, July, 1927.

12.—Holloway, J. K. and von Lackum, W. H.: Chronic Prostatitis with Special Reference to its Focal Aspects. *M. J. and Record* 122:64, July, 1925.

13.—Player, L. P.: Prostate and its Influence on Low Back Pain. *California and West. Med.* 23:993, August, 1925.

14.—Rosenow, E. C.: Oral Sepsis in its Relationship to Focal Infection and Elective Localization. *Med. Herald* 46:1, January, 1927.

15.—Polkey, H. J.: Diverticulosis of the Urinary Bladder. *Urol. and Cut. Rev.* 31:67, February, 1927.

16.—Rose, D. K.: The Pathogenesis of Bladder Diverticula. *Arch. Surg.* 14:554, February, 1927.

17.—Hinman, Frank: The Etiology of Vesical Diverticulum. *J. Urology* 3:207, August, 1919.

18.—Lurz, L.: So Called Congenital Diverticula of the Bladder. *Ztschr. f. Urolog.* 18:278, 1925.

19.—Hyman, A.: Diverticula of Bladder in Children. *Surg. Gynec. Obst.* 36:27, January, 1923.

20.—Hager, B. H. and Magath, T. B.: The Etiology of Incrusted Cystitis with Alkaline Urine. *J.A.M.A.* 85:1352, October, 1925.

21.—Martin: Effect of Deep Roentgenography on Cancer. *J. d'Urol.* 19:232, March, 1925.

22.—Bumpus, H. C.: Modern Methods and Results of Treating Malignancy of the Bladder, *J.A.M.A.* 83:1139, October, 1924.

23.—Barringer, B. S.: Radium Removal of Carcinoma of Bladder. *J. Urology* 13:131, February, 1925.

24.—Joseph, Prof. E.: Treatment of Bladder Tumors. *Ztsch. f. Urolog.* 19:118, 1925.

25.—Corbus, B. C.: Bladder Tumors as Treated by Thermo-Electric Coagulation. *Arch. Physical Ther.* 7:652, November, 1926.

26.—Wintz, Herman: Experiments with Deep Roentgen Therapy in Urology. *Urol. and Cut. Rev.* 31:9, January, 1927.

27.—Ullman, H. J.: The Combination of Colloidal Lead and Irradiation in Cancer Therapy. *J.A.M.A.* 89:1218, October, 1927.

28.—Cassuto, A.: Explosion dans la vessie au cours d'une electro-coagulation. *J. d'Urol.* 22:263, October, 1926.

29.—Duncan, J. G.: Report of a Perfume Bottle in a Man's Bladder. *Urol. and Cut. Rev.* 31:514, August, 1927.

30.—Blanc, H.: Methylene Blue in Renovesical Tuberculosis. *Paris Méd.* 2:124, August, 1926.

31.—Dean, A. L.: Treatment of Teratoid Tumors of the Testes with Radium and X-Ray. *J. Urology* 13:149, February, 1925.

32.—Martin, C. L. and Rogers, F. T.: The Effect of Irradiation on the Ureters. *Am. J. Roentgenol.* 16:215, September, 1926.

33.—Rosenburg, A.: A New Method for Removal of Deep Seated Wedged-In Ureteral Stones. *Urol. and Cut. Rev.* 31:591, September, 1927.

34.—Stirling, W. C.: New Forceps for the Removal of Impacted Ureteral Calculus. *J.A.M.A.* 88:924, March, 1927.

35.—Gottlieb, J.: Essential Hematuria. *Ztschr. f. Urol.* 18:237, October, 1925.

36.—Armitage, G. L.: Toxic Nephritis Treated by Decapsulation. *Atlantic M. J.* 30:635, July, 1927.

37.—Eberbach, C. W.: The Pathogenesis of Renal Tuberculosis. *J. Urology* 17:233, February, 1927.

38.—Macomber, D.: Frequent Miscarriages Associated with Pyelitis. *Urol. and Cut. Rev.* 31:96, February, 1927.

39.—Curtis, A. H.: Spontaneous Recurrent Abortion. *J.A.M.A.* 84:1262, April, 1925.

40.—Mathe, C. P.: Recent Advances in Diagnosis and Treatment of Urological Conditions. *Hospital Prog.* 8:59, February, 1927.

41.—Hinman, E. and Hepler, A. B.: Experimental Hydronephrosis and Relation of Changes of Blood. *Arch. Surg.* 11:649, November, 1925.

42.—White, H. P.: The Pathology of Hydronephrosis. *Brit. J. Surg.* 13:267, October, 1925.

43.—Hundley, J. M.: Pyelitis in the Female. *J.A.M.A.* 86:603, February, 1926.

44.—Bothe, A. E.: Hypernephromata. *Ann. Surg.* 84:57, July, 1926.

45.—Kearns, W. M.: Kidney Function Tests. *Urol. and Cut. Rev.* 31:434, July, 1927.

46.—Ockerblad, N. F.: Practical Application of the Creatinin Renal Function Test. *J. Urology* 13:411, April, 1925.

47.—Corkill, A. B.: Estimation of Salivary Urea as Index to Renal Prognosis. *M. J. Australia* 1:236, March, 1925.

48.—Loewenstein, E.: Tuberculosis as a Systemic Disease. *J. Michigan M. Soc.* 26:236, April, 1927.

49.—Coope, R. and Jones, H. W.: Urea Concentration Test in Nephritis and its Prognostic Value. *Brit. M. J.* 1:51, January, 1927.

50.—Jones, S. G.: A Method of Demonstrating Tubercle Bacilli in the Urine. *J.A.M.A.* 83:1917, December, 1924.

The Therapeutic Use of the Bacteriophage, with Special Reference to Streptococcic Infections

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SINCE d'Herelle[1] announced the discovery of the bacteriophage and demonstrated it as a factor in the recovery from infectious diseases, many workers have turned their attention to its aplication as a therapeutic agent.

A discussion, in this place, of the controversy that has arisen concerning the nature of the bacteriophage is not in order. Suffice it to say that its discoverer, and a considerable following, hold that it is an ultra-microscopic, filter-passing virus which parasitizes the bacterium; not only causing its death, but completely lysing the bacterial cell. Opposed to this view is that supported by most of the American workers, which holds that the lytic principle is a product of the bacterial metabolism.

The experimental demonstration of the nature of the bacteriophage and its behavior is one of the most striking of the advances in bacteriology, but is far too complex to be dealt with briefly. For the purpose of this paper it is sufficient to state that it is obtained by subjecting young cultures to the action of some substance (sewage filtrate, feces filtrate, old cultures, blood, tissue exudates, etc.,) which is expected to contain the active principle; incubating for a varying period of time (usually 24 hours); filtering through a Berkefeld candle or some similar filter; then adding a portion of the filtrate to another young culture; repeating the process until lysis is obtained. When this occurs, the filtrate is a sterile suspension of the bacteriophage in the medium, plus the bacterial proteins liberated by the lysis of the bacterial cells, and any liberated toxins. After a period of several weeks, the toxins in a mixture are rendered nontoxic, presumably by the action of the bacteriophage.

There are several precautions to be observed in using lysed filtrates therapeutically. The proteins of the medium or the bacterium might possibly produce an anaphylactic shock. I have not seen this reported, however, and a series of some fifty patients so treated have not exhibited it. However, if one wishes to be safe, Arnold[2] has developed a means by which the bacteriophage can be separated from the bacterial proteins, and Caldwell[3] has shown that a synthetic, protein-free medium is satisfactory for the production of active lysates. It is also necessary to determine carefully that there is no bacterial growth in the filtrate, due either to a leaky filter or to the development of bacteria from the filterable forms, such as has been demonstrated for the tubercle bacillus. Too many doses must not be given, as the bacteriophage is antigenic, and an antiphagic response might be elicited; in which event not only would the phage given be of no avail, but any other phage, present naturally, would be counteracted.

The range of diseases in which the bacteriophage is possibly of benefit includes most of the bacterial infections. The most striking instances are those recorded by d'Herelle in animal diseases. This is due, of course, to the facility with which the animal experiments can be carried out. Aside from d'Herelle's extensive reports as to the efficiency of the bacteriophage controlling infections in man, there are many other reports in the literature.

Hauduroy[4], in a general paper, asserts the efficiency of bacteriophagic treatment in infectious diseases. He believes that negative results are due to mixed infections. Alessandrini and Doria[5] successfully treated 50 percent of their typhoid patients with the bacteriophage, although Herdeschee[6] failed to secure favorable results in 95 cases.

Dysentery and Urinary Infections

Spence and McKinley treated 20 cases of bacillary dysentery with bacteriophage, and withheld the treatment in 12 control cases. The mortality of the treated cases was 10 percent, as compared with 40 percent in the untreated cases. The average duration of the illness of those recovering in the treated series was 8.9 days (5.8 days after treatment), as compared to 19.3

Fig. 1

Fig. 2

Fig. 3

Fig. 1.—"S" type hemolytic streptococcus colonies. These strains are usually highly virulent.

Fig. 2.—"S" type streptococcus colonies of the viridans type.

Fig. 3.—Intermediate type streptococcus colony.

days (12.8 days after treatment other than bacteriophage) in the untreated cases. Da Costa Cruz[8] secured prompt improvement in 24 cases of bacillary dysentery by giving 2 cc. of bacteriophage by mouth. Davidson[9], on the other hand, was unable to secure favorable results with bacteriophage in bacillary dysentary in children.

In the treatment of urinary tract infections, almost uniformly good results have been obtained. Markuse[10] successfully treated experimental cystitis in guinea pigs. Zdansky[11] secured a clinical and bacteriologic cure in 6 of 20 cases of kidney infections resistant to treatment by other methods. Frisch[12] secured encouraging results by instillations of the bacteriophage into the kidneys and bladder. Dalsace[13] treated 17 cases of colon bacillus infection of the urinary tract, with 2 recoveries; and 11 cases of staphylococcus infections, with 6 recoveries. He showed that the negative results were obtained when the bacterium isolated from the patient was resistant to the action of the bacteriophage in vitro. Larkum[14] treated 4 patients with urinary tract infections with good results. Barbosa[15], using a staphylococcus bacteriophage, caused the symptoms to subside, in 2 refractory cases of pyelitis, by the second day after treatment. He also secured prompt improvement in the treatment of a suppurating wound.

Hauduroy, Comus, and Dalsace promptly controlled staphylococcus infections with the bacteriophage. Gougerot and Payre[17], using a staphylococcus bacteriophage, secured complete recovery in 2 out of 4 cases of sycosis with pustular dermo-epidermitis. Schumm and Cooke[18], on the other hand, failed to see benefit from staphylococcus bacteriophage in staphylococcus infections of the antrum.

D'Herelle[19] gives a long list of infections in man that have been successfully treated with bacteriophage and, for an understanding of its value in human infections, his books are to be recommended.

Streptococcus Bacteriophage

Upon study it is found that it is difficult to obtain a bacteriophage from the streptocoocci. I have reported what is thought to be phagic action in this group, although the activity of the filtrates was so slight that it is possible the phenomenon observed was but a manifestation of bacterial dissociation. However, some workers, notably Hadley[20], think that the two are but different manifestations of the same basic principle. Such filtrates have been used with some degree of success in the treatment of streptococcus septicemia. In previous papers[21, 22], I have pointed out the results obtained in a series of streptococcus septicemias. McKinley[23] has reported the successful treatment of streptococcus abscess of the lung with instillations of the lytic principle into the abscess cavity. More recently I[24] have extended the series of streptocooccus septicemias which have been studied, and have attacked the explanation of the results from a different viewpoint.[25]

It is possible to demonstrate that there are two main types of streptococcus cul-

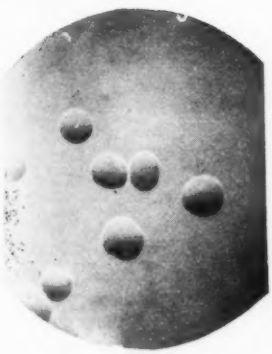

Fig. 4

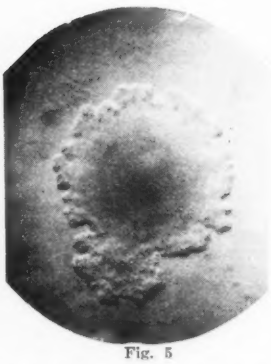

Fig. 5

Fig. 6

Fig. 4.—"S" type colony derived from the colony shown in Fig. 3 by colony selection. (Fig. 4 and 5 illustrate the potential variations that exist in many strains.)

Fig. 5.—"R" type colony derived from the colony shown in Fig. 3 by colony selection.

Fig. 6.—A lytic ("suicidal") type streptococcus colony. Filtrates of strains of this type have been used therapeutically.

tures with reference to the colony form. The "S" type, or smooth colony form (Figs. 1, 2 and 4), is normal; while the "R" type, or rough colony form (Fig. 5) is abnormal. D'Herelle[10] maintains that the rough forms are indications that the culture is mixed with bacteriophage; while those opposed to him think they are manifestations of bacterial dissociation and have nothing to do with bacteriophage. Hadley[20] holds that the two phenomena are fundamentally the same thing, to which opinion I am strongly inclined. By either hypothesis, the "S" types are the virulent strains, while the "R" types are avirulent.

A careful study of the strains of streptococcus isolated from the blood stream reveals that the "S" type is encountered in those patients who succomb to the infection, while the "R" types are encountered in those patients who recover spontaneously. In a series of 35 patients, the "S" type was encountered twelve times, and the "R" type, or an intermediate type (Fig. 3), 23 times. Eight of these 23 showed extremely rough strains, the patients recovering spontaneously. All of these eight strains showed a tendency to spontaneous lysis, some strikingly so. Filtrates of broth cultures of these strains were used therapeutically on the remaining 27 patients. Of the 27 treated cases, 10 died, from all of whom the "S" type organisms had been isolated. The remaining 17 patients recovered, from whom "R", or intermediate organisms, had been isolated in all but 2, who had "S" type organisms. In some instances the recovery was striking, and the conclusion that the filtrate was the responsible agent is almost impossible to escape. In the others, the recovery was more delayed. A few typical abbreviated case histories will suffice to illustrate the types of response.

Case Reports

Case 1.—Mr. C. suffered a traumatic injury to the right hand, from which a diffuse cellulitis developed, spreading up the forearm. Blood culture revealed the presence of a hemolytic streptococcus. Amputation was considered but deferred, and 5 cc. lysed streptococcus filtrate was given intravenously. (This is the largest dose of filtrate given in the series). After 24 hours the blood stream was still positive, but after 48 hours it was sterile and remained so. Amputation was not done. In this case there was prompt sterilization of the blood stream, the local lesions healing more slowly, but eventually.

Case 2.—Mr. G. had pneumonia, due to pneumococcus, and developed a streptococcus septicemia. His condition was very grave. Five cc. of an "R" type organism filtrate, thought to contain bacteriophage, was given intravenously. Twenty-four hours later the blood stream was sterile and the patient went to an uneventful recovery. The injection failed to modify the pneumonia, although the streptococcus infection was promptly controlled.

Case 3.—Baby W. for several weeks had successively appearing abscesses at various points; an arthritis of one hip joint; and a temperature elevation occurred every day. The child was undernourished and would eat nothing. A streptococcus of an intermediate type was isolated from the blood stream. Attempts to control the symptoms were without avail. Two cc. of filtrate were given. Attempts were made to give this intravenously, but the blood pressure was too low to make a successful

venipuncture; accordingly it was given subcutaneously. The recovery of the patient was prompt. Within 24 hours defervesence occurred, the appetite returned, the abscesses dried up and new ones failed to appear. The arthritis subsided more slowly. Recovery of this patient was uneventful.

Illustrating spontaneous recovery without treatment is the following case:

Case 4.—Mrs. W. developed a septic type of temperature soon after the delivery of a child. Blood cultures showed a streptococcus of a markedly lytic type. No treatment was given. Four days after the initial rise in temperature the patient was free of fever and showed no other clinical signs of sepsis. Blood cultures taken at this time were sterile. Convalescence uneventful.

Another case of unusual interest was seen:

Case 5.—Mrs. G., following a mastoid infection, developed a septic clinical picture and the blood culture was reported as streptococcus viridans (from a laboratory other than my own). Two doses of filtrate, of 2 cc. each, were given, intravenously. The patient made a slow recovery to the point of discharge from the hospital. Three weeks after discharge, meningitis developed. From the blood stream and the spinal fluid a streptococcus, belonging to the hemolytic group and of a markedly rough type, was isolated. Recovery was so rapid, without medication, that the clinical signs of sepsis and meningitis disappeared within 72 hours after the blood culture was taken and before a final report could be made. This is of unusual interest because of the spontaneous recovery from meningitis caused by the streptococcus, as recovery in such a case is very rare, even under vigorous medication.

A case not included in the above series of septicemias is of interest:

Case 6.—Mrs. C. developed an extensive abscess in the superficial fascia of the thigh, draining large quantities of pus. Cultures from the pus showed a mixture of hemolytic streptococcus and a staphylococcus. The blood stream was sterile. All treatment was withheld except flooding the cavity with a filtrate, active against streptococcus, but not active against staphylococcus. Cultures were made daily. The amount of pus decreased, changed in character and the relative proportion of streptococcus and staphylococcus changed. the streptococci steadily became fewer, while the staphylococci were unaffected. After 4 days, the streptococci disappeared entirely and other treatment was directd at the remaining staphylococci. This case is of interest in that it illustrates the relative specificity of the filtrates.

It is realized that there is much to be learned of the action of lysed bacterial filtrates as therapeutic agents. Just what component of the filtrate is responsible for this action? Is it bacteriophage, or the dispersed bacterial proteins? It has been shown that the bacterial proteins in such a filtrate are still antigenically specific, and are more potent as antigens than the whole bacteria. It is possible that this factor is more active therapeutically than the lytic principle.

There may be some, as yet unknown, factor that is responsible for the avirulence of "R" type bacteria, which has the capacity to induce the loss of virulence in "S" strains or those of higher virulence. This, of course, would be a dissociation phenomenon, and as such, distinct from bacteriophage activity in the accepted sense. These questions we must leave for the future to elucidate. At present, however, our experience indicates that there is a field well worth exhausting in a search for practical means of controlling infections, especially those that have failed to respond to therapeutic agents now at our disposal.

This paper makes no attempt to state the various problems that confront the bacteriologists in approaching a study of this nature, nor does it suggest more than a minimum of the detailed bacteriologic work done. It is hoped that its mission will be fulfilled in bringing to the attention of a wider group of clinicians the possibilities that lie in this direction. Especially is the indication of interest that a means of controlling streptococcus septicemia has been found, for, hitherto, therapy of any sort has given, at best, only sporadic results in these cases.

Bibliography

1.—d'Herelle: Le Bacteriophage; son role dans l'immunité. 1921—"Monograph de l'Inst. Pasteur."

2.—Arnold and Weiss: Bacterial Protein-Free Bacteriophage Prepared by Tryptic Digestion, *Jour. Immunology*. Vol. 12, Nov., 1926, Page 396.

3.—Caldwell, J. A.: The Activity of an Anticolon Bacteriophage in Synthetic Medium. *Jour. Inf. Dis.*, Vol. 39, August, 1926, Page 122.

4.—Hauduroy, P.: Bacteriophage in Treatment of Infections. *Annales de Méd.*, Vol. 16, October, 1926, Page 359.

5.—Alessandrini, A. and Doria, R.: Bacteriophage Treatment of Typhoid. *Policlinico*, Vol. 31, Jan., 1924.

6.—Herdeschee, D. and Wolff, L. K.: *Nederlandsch Tydschrift v. Geneeskunde*, Vol. 1, June, 1924.

7.—Spence, R. C. and McKinley, E. B.: *Southern Med. Jour.* Vol. 17, August, 1924, Page 562.

8.—Da Costa Cruz: Bacteriophage in Therapeutics, *Brazil Medico*, Vol. 1, May, 1923, Page 298.

9.—Davidson, W. C.: The Application of the Bacteriolysants to Treatments of Bacillary Dysentery in Children. *Am. Jour. Dis. Child.* Vol. 23, 1922, Page 531.

10.—Markuse, K.: *Deutsche Med. Wchnschr.* Vol. 50, March, 1924, Page 334.

11.—Zdansky, E.: Bacteriophage in Therapeutics. *Seuchenbekampfung*, Vol. 2, 1925, Page 150.

12.—Frisch, B.: Treatment of Infection of the Urinary Tract with Bacteriophage, *Wein. Klin. Wchnshr.* Vol. 38, July, 1925.

13.—Dalsace, R.: Bacteriophage Treatment of Urinary Infections, *Jour. d'Urologie*, Vol. 21, Jan., 1926, Page 123.

14.—Larkum, N. W.: Bacteriophagy in Urinary Infections, *Jour. Bact.*, Vol. 12, September, 1926, Page 203.
15.—Barbosa, N.: Curative Action of Staphylococcus Bacteriophage, *Brazil Medico*, Vol. 1, May, 1923, Page 297.
16.—Hauduroy, P., Comus, P. and Dalsace, R.: The Treatment of Staphylococcus Infections by the Bacteriophage, *Presse Méd.*, Vol. 34, September, 1926, Page 1195.
17.—Gougerot and Peyre: *Comptes Rend. de la Soc. de Biol.*, Vol. 91, July, 1924, Page 452.
18.—Schumm, Elsie and Cooke, Robt. A.: *Jour. Inf. Dis.*, Vol. 39, November, 1926, Page 424.
19.—d'Herelle: The Bacteriophage and Its Behavior, English Translation, 1926.
20.—Hadley, P.: Microbic Dissociation, *Jour. Inf. Dis.*, Vol. 40, January, 1927, Page 1.
21.—Dutton, L. O.: The Probable Role of the Bacteriophage in Streptococcus Infections. *Jour. Lab. and Clin. Med.*, Vol. 11, May, 1926.
22.—Dutton, L. O.: The Role of the Bacteriophage in Streptococcus Infections, *Jour. Inf. Dis.*, Vol. 39, July, 1926, Page 48.
23.—McKinley, E. B.: Bacteriophage in Treatment of Infections, *Arch. Int. Med.*, Vol. 32, Page 899.
24.—Dutton, L. O.: Bacteriophage in Streptococcus Infections. Read before the Society of American Bacteriologists, December, 1926.
25.—Dutton, L. O.: Microbic Dissociation in Streptoccus Cultures, Read before the Society of American Bacteriologists, December, 1927.

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Progress in the Control of Pernicious Anemia

(A Synopsis of Recent Literature)

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PERNICIOUS anemia, while uncommon, is yet of sufficiently frequent occurrence to make its effective treatment a matter of importance. The extensive literature which has accumulated in connection with pernicious anemia seems, however, to have arisen rather on account of that peculiar fascination which lends itself to the pursuit of baffling problems, for there is scarcely a pathologic entity (if pernicious anemia may be termed an entity) which has offered so many unaccountable aspects, both as regards etiology and treatment, as has the condition under consideration; nor is there one in which so many different kinds of therapy have been employed with so few tangible results.

The history of pernicious anemia therapy is one of pure medical empiricism; even at the present moment, when treatments have been evolved that apparently seem to hold the disease in control, and when methods have been established for its differentiation from other abnormal blood conditions, it cannot be said that there is any definite knowledge in regard to its etiology or exact pathology.

The scope of this paper embraces a glance at some of the more important treatments in the past and a more detailed summary of the treatments evolved during the immediately past few years, which have given clinical results seemingly far beyond those previously reached and which may fairly be considered to hold pernicious anemia in check if not definitely to lead to its cure.

Bearing in mind that, despite spontaneous remissions and an occasional spontaneous recovery, the disease was generally considered as hopeless, yet early attempts were made to treat it dietetically. Habershon,[1] in 1863, Biermer[2] in 1872, and Pepper[3] in 1875, made attempts of this kind. The dietetic treatment will be referred to later.

In 1894, Fraser[4] suggested the eating of red bone marrow.

Many in the past, as well as today, consider pernicious anemia to be dependent on intestinal intoxication, especially as it is often accompanied by achylia gastrica and an abnormal bacterial activity in the intestines. Attempts to disinfect the gut, based on this view, have been made, one of the most recent being that of Cohn[5], with massive doses of sodium bicarbonate. Fist[6] and McLaughlin[7] claim remissions following the use of mercurochrome, and Conner[8] uses a mixture of gentian violet and acriflavine with good effect.

To combat the achylia, Bing[9] reported the results of systematic administration of hydrochloric acid as giving remarkable and persisting improvements. Pitzman[10] and others also report much improvement of the blood picture and clinical symptoms in small series of cases treated in the same way.

The methods adopted to check toxemia arising from the bowel have, however, been mostly surgical. In 1923 Dixon, of the Mayo Clinic, and his associates[11] began treating a small series of cases with pronounced pernicious anemia by ileostomy and elimination of the colon, thus excluding the absorption of deleterious substances. This experience led to the conclu-

sion that this method, although justifiable, could not be advocated as a therapeutic measure.

Generally speaking, the effects of blood transfusions have been satisfactory in keeping patients alive, but they must be constantly repeated as their effect is temporary only. Hunter[13], in 1925, reported that only two of a series of 42 patients were cured by transfusion, drugs and dietetic measures. Jones[13], in 1926, summarized the literature of treatment of pernicious anemia by blood transfusion.

The chemotherapy of the blood-forming organs might be said to have commenced with Menghini's[14] discovery, in 1746, that iron in the blood could be increased by feeding iron-containing foods. Many years later, Gibson and Howard[15] applied this principle to the treatment of pernicious anemia, and it is mentioned as a possible factor in the success of the present-day liver feeding treatment which will presently be discussed.

Good results are claimed for arsenicals by Goodall[16] and Hartmann[17], the latter using arsphenamine intravenously.

With regard to the treatment of pernicious anemia by splenectomy, Krumbhaar[18] published statistics of 208 cases. There was improvement in 144; no improvement in 26; 35 patients died following the operation and 79 died subsequently.

Other treatments referred to in recent literature include radium, reported by Tomanek[19]; extract of suprarenal cortex, reported by Stephan[20] ; and insulin in conjunction with blood transfusion, reported by Walinski[21].

The literature of pernicious anemia has recently been enriched by some important contributions, especially concerning liver feeding treatment, the high-caloric, vitamine-rich diet treatment and Macht's phytotoxic test. This latter is important not only for the reasons which will be given but also because, as Minot and Murphy[22] have recently shown, there are forms of severe anemia, such as a leukocythemic myeloid leukemia, that may closely simulate pernicious anemia and failure of liver diet may occur in such cases, owing to inaccuracy in diagnosis.

The Liver Diet

The liver feeding treatment of pernicious anemia may be said to have been inaugurated by Robscheit-Robbins and Whipple's[23] experimental investigation of blood regeneration in severe anemias. They showed that, in the secondary anemia produced in dogs by repeated bleedings, blood regeneration is most promptly brought about by the feeding of liver, which was the most potent factor for the sustained production of hemoglobin and red cells.

Following the work of Robscheit-Robbins and Whipple, Minot and Murphy[24] made some clinical observations concerning the influence of a diet containing an abundance of liver on blood regeneration. The effect appeared to be similar to that which had been obtained in dogs. These observations led these authors to investigate the value of a diet rich in complete proteins and iron —particularly liver—in pernicious anemia. From 120 to 240 Gm. of cooked liver were given daily in this diet. The amount of fat was reduced as much as possible but the total daily caloric value of the intake was kept between 2000 and 3000 calories. All but 3 of 45 patients treated took also each day about 15 cc. of diluted hydrochloric acid. Following the diet there was a rapid and distinct remission of the anemia, coincident with rather marked symptomatic improvement, except for the pronounced disorders due to spinal cord degeneration.

Minot and Murphy[25] have very recently reported on the results in 105 cases thus treated. In these the duration of liver feeding ranged from 3 months to 3 years, about 200 Gm. of cooked liver, on an average, being ingested daily. When the treatment was initiated, 90 of these patients showed red blood cells below 2,700,000, and on an average 1,480,000. Only 15 of the patients showed red blood cells over 2,800,000 per cubic millimeter. All showed prompt blood improvement. When the diet (primarily liver) was taken persistently, the average red blood cell count has remained above 4.5 millions per cubic millimeter.

These investigators do not agree with Simmonds, Becker and McCollum[26] that iron and vitamine E are the factors which cause improvement. A non-protein fraction of liver, containing only about 2 percent of the whole organ and free from vitamines, produced the same effects as whole liver feeding. Minot and Murphy therefore suggest that, in future, a few Grams of the non-protein fraction of ox liver may be substituted for large quantities of whole liver.

The red blood cells of 99 patients reached 4 millions or more per cubic millimeter within about two months and have remained at about this level (except for temporary drops) in approximately 15 percent. The health of the other patients was greatly improved, although their red blood cells did not reach 4 millions. All patients who continued the liver diet consistently for 2 to 3 years average 4.5 million red blood cells.

The Vitamines

Koesser and Maurer[27] think that vitamine A is essential for blood regeneration and that the clinical picture of pernicious anemia is due to deficiencies of vitamines A, B and C.

These writers record their experience based on observation of 42 patients with demonstrated pernicious anemia, treated in the Cook County and other Chicago hospitals. Twenty-three and seven tenths percent of these had red blood cell counts of 550,000 to 1 million; 13 percent less than 1.5 million; 19 percent were less than 3 million. Under treatment with a high caloric diet, rich in vitamines, the beginning of a remission of the anemia was observed after 2 or 3 weeks in every case. The diet contained liver, kidney and other edible viscera. These writers do not agree with Minot and Murphy that a diet low in fats is justifiable.

All the patients treated (except one) are alive today, in good health and show a quantitatively and qualitatively normal blood picture. The authors are satisfied that pernicious anemia is the result of vitamine deficiency, continued over a long period. This vitamine deficiency may arise either from underfeeding or from insufficient utilization of food.

Koesser[28] believes that the results obtained with liver are due to its containing vitamines A, D and E, especially vitamine A; but recent investigations suggest that there is also in liver a substance connected with blood regeneration which is not a fat-soluble vitamine.

The Phytotoxin Test

Macht[29] has discovered an ingenious method of differential diagnosis of pernicious anemia which can also be employed for evaluating different therapeutic methods. He observed that substances which were not definitely toxic for living animal organisms could be toxic for living plant organisms; i.e., for plant protoplasm. It was found, for instance, in the case of seedlings of *Lupinus albus*, that the average coefficient of their growth in normal blood serum was 75 percent; whereas, in the blood serum from cases of pernicious anemia, the average was 44 percent. With other serums, obtained from cases of other blood conditions such as leukemia, secondary anemia, etc., the percentage of growth, while not so high as in normal blood, was still considerably higher than in serum from cases of pernicious anemia. This test, the *phytotoxin test*, which Macht fully verified, could be used for establishing a doubtful clinical diagnosis of pernicious anemia or as a means of differentiating between pernicious anemia and other blood conditions. Etiologically, Macht considers that his investigations suggest that a toxin is the cause of pernicious anemia—some phytotoxin which is not found in normal blood.

Macht made a number of investigations with a view to detoxification of the blood serum of pernicious anemia. It was found that, while irradiation of normal blood serum with ultraviolet rays did not alter its phytotoxic index, similar irradiation of pernicious anemia blood serum did materially reduce its phytotoxicity. Furthermore, by experimentation with a number of dyes as sensitizers, it was found that some of them rendered the detoxifying effects of ultraviolet irradiation of pernicious anemia blood serum much more pronounced. Eosin and tetrabromfluorescein were found to be the most effective of the dyes.

Macht used his phytopharmacologic test as a criterion of the value of different treatments of pernicious anemia, testing the blood at different epochs in the course of each type of treatment.

Transfusion of blood was found not to eliminate, permanently or for any considerable length of time, the toxic substance responsible for the inhibition of plant growth.

Nine cases which had been treated with liver diet were tested. In 4 there was a marked decrease of toxicity; in 1 the blood reacted as normal blood; in some others the reactions were not so marked and the blood serum, even after a prolonged liver diet, still showed marked phytotoxicity.

Ultraviolet irradiation of pernicious anemia blood serum, using a carbon arc lamp, showed in every case a marked decrease in the phytotoxicity of the serum.

With regard to the use of dye sensitizers, György and Gottlieb[30] had shown that ultraviolet irradiation, plus eosin, had been very effective in infantile rickets. In Macht's experimental testing of the effects of irradiation, plus eosin or tetrabromfluorescein, on pernicious anemia blood serum, the patients were given liver diet in addition. In all cases tested there was a definite improvement in the phytotoxicity, which went hand in hand with amelioration of the clinical symptoms.

Simmonds, Becker and McCollum had suggested that the presence of iron, together with the presence of vitamines which are specifically related to iron assimilation, may be the explanation for the therapeutic power of liver diet in pernicious anemia. But Macht suggests another tentative hypothesis. The blood pigment, hematophorphyrin, stored in the liver, is a powerful sensitizer, not only for ultraviolet but also for the longer and visible sun rays. Macht thinks its presence in liver may help the irradiation effectiveness.

Larsell and his associates[31] think it may prove true that the beneficial effects of liver feeding may, in part at least, be due to its large nuclear content and corresponding large amount of nucleic acid and other nuclear substances.

To test the therapeutic effectiveness of mercurochrome-220 soluble, a number of blood specimens were examined, taken from patients in whom pernicious anemia had been definitely diagnosed, clinically and microscopically, and who had been treated by intravenous injections of mercurochrome. It was found that, hand in hand with improvements in the clinical picture reported by clinicians, there was a detoxification of the blood serum, as determined by the phytopharmacologic test.

It would therefore seem, from the present aspects of the literature, that the treatment of pernicious anemia resolves itself into: liver diet; feeding food of high caloric value, rich in vitamines; and ultraviolet irradiation, with or without the use of sensitizing dyes.

Methods of Serving Liver

A few notes are added regarding methods of preparing liver for dietary purposes.

Drs. Minot and Murphy[25] feed their patients about 200 Gm. of liver each day. Cooked liver may be served in any way that pleases the patient, but prolonged boiling is to be avoided. Raw liver is perhaps more efficacious than cooked, and it may be given as finely divided liver pulp. It can be taken mixed with orange juice or water, at mid-morning and mid-afternoon.

Drs. Koessler and Maurer[27] say that liver should not be salted during cooking. It should be first parboiled for about 20 to 30 minutes and then broiled (not fried!) on both sides so that the inside of the slice is still somewhat rare. One hundred and fifty Gm. are given at dinner and 100 Gm. at supper without any other meat.

The following recipes have been used successfully at the Presbyterian Hospital, New York City, by Dr. S. Fiske:

1. Scalloped Liver

1 lb. liver.
½ cup crumbs.
2 cups white sauce.
1 cup tomato.
2 squares butter.

Parboil the liver and cut in cubes. Line a buttered baking dish with cracker crumbs. Place alternated layers of liver, white sauce, cracker crumbs and tomatoes, white sauce and cracker crumbs. Dot layers with butter.

2. Liver Loaf with Tomato Sauce

3 slices of liver, parboiled and ground.
3 strips of bacon, ground.
1 tablespoonful of cream.
1 small onion, ground.
2 eggs.
1 scant cup of cracker crumbs.

Mix the ingredients, and bake in a loaf, using most of the cracker crumbs to cover the outside.

3. Hot Liver and Tomato Salad

Half a cup of ground and cooked liver seasoned with salt and pepper. Place liver on lettuce leaf and put two slices of raw tomato over liver. Top with parsley.

Variation: Serve horseradish or mustard sauce at the side.

4. Liver Custard

1 egg.
¼ cup of ground liver.
½ cup of milk.
¼ teaspoonful of salt.
¼ tablespoonful of butter.

Beat egg slightly, add liver, milk and salt. Put in buttered mold and set in pan of hot water to bake in a moderate oven until firm.

Liver Cocktail

Dr. W. T. Wilkins,[32] of Piqua, O., gives the following formula for a raw liver "cocktail":

Remove the "skin" around the edges of the liver as received from butcher; carefully remove all veins and tough parts with a sharp knife; rinse in cold water; put through meat grinder twice, using the finest cutter. Then place on ice.

Prepare a sauce as follows:

Tomato catsup (Heinz)..½ cup
Lemon juice .....¼ cup
Worcestershire sauce ....2 teaspoonfuls
Chives (finely chopped)..½ teaspoonful
Salt and pepper.....to taste

Mix the liver and sauce in the proportion of one part crushed liver to two and a half parts of sauce. Chill thoroughly and serve in a cocktail glass with crackers.

Dr. Wilkins says that the dish has proved acceptable to epicures. Only small portions should be served at first until a taste has been acquired.

References

1.—Habershon, S. O.: *Lancet* 1:518, May 9, 1863.
2.—Biermer: *Corresp. Bl. f. Schw. Aerz.* 2:15, Jan. 15, 1872.
3.—Pepper, W.: *Am. J. M. Sc.* 80:313, Oct., 1875.
4.—Fraser, I.: *Brit. M. J.* 1:1172, June 2, 1894.
5.—Cohn, H.: *Deutsches Arch. f. klin. Med.* 150: 112, Feb., 1926.
6.—Fist, H. S.: *J. Iowa M. Soc.* 16:310, July, 1926.
7.—McLaughlin, P. B.: *J. Iowa M. Soc.* 15:313, June, 1925.
8.—Conner, H. M.: Discussion of Paper by Minot and Murphy, *J.A.M.A.* 89:759, Sept. 3, 1927.
9.—Bing, H. J.: *Ugeskr. f. Laeger*, Copenhagen, 88:475, 1926.
10.—Pitzman, M.: *J. Missouri M.A.* 23:138, April, 1926.
11.—Dixon, C. F., Burns, J. G., and Griffin, H. Z.: *J.A.M.A.* 85:17, July 4, 1925.
12.—Hunter, O. B.: *Ann. Clin. Med.* 4:62, June, 1925.
13.—Jones, H. W.: Blood Transfusion in Pernicious Anemia. *J.A.M.A.* 86:1675, May 29, 1926.
14.—Menghini: Cited by H. A. Christian, *Med. Lib. and Hist. J.* 1:176, July, 1903.
15.—Gibson, R. B. and Howard, C. P.: *Arch. Int. Med.* 32:1, July, 1923.
16.—Goodall, A.: *Lancet* 1:1160, June 12, 1926.
17.—Hartmann, E.: *Deut. med. Wchnschr.* 52: 1038, June 18, 1926.
18.—Krumbhaar, E. B.: *J.A.M.A.* 67:723, Sept., 2, 1916.
19.—Tomanek, F.: *Brit. J. Radiol.* 31:298, August, 1926.
20.—Stephan, R.: *Mediz. Klin.* 22:679, April 30, 1926.
21.—Walinski, F.: *Deut. med. Wchnschr.* 52:1462, Aug. 27, 1926.
22.—Minot, Geo. R., and Murphy, W. P.: *Med. Clin. N. Amer.* 10:1093, March, 1927.
23.—Robscheit-Robbins, P. S., and Whipple, G. H.: Blood Regeneration in Severe Anemia, *Am. J. Physiol.* 72:408, 1925.
24.—Minot, Geo. R. and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet. *J.A.M.A.* 87:470, Aug. 14, 1926.
25.—Minot, Geo. R. and Murphy, W. P.: A Diet Rich in Liver in the Treatment of Pernicious Anemia. *J.A.M.A.* 89:759, Sept. 3, 1927.
26.—Simmonds, Nina, Becker, J. E. and McCollum, E. V.: The Relation of Vitamine E to Iron Assimilation. *J.A.M.A.* 88:1047, April 2, 1927.
27.—Koesser, K. K., and Maurer, S.: Treatment of Pernicious Anemia with a High Caloric Diet Rich in Vitamines. *J.A.M.A.* 89:768, Sept. 3, 1927.
28.—Koesser, K. K.: Discussion of Paper by Minot and Murphy. *J.A.M.A.* 89:759, Sept. 3, 1927.
29.—Macht, D. I.: Pernicious Anemia, *J.A.M.A.* 89:753, Sept. 3, 1927.
30.—György and Gottlieb: *Klin. Wchnschr.* 2:1302, July 9, 1923.
31.—Larsell, O., Jones, N. W. Nokes, H. T. and Phillips, B. I.: The Hemotopoietic Effects of Intravenously Injected Nucleic Acids. *J.A.M.A.* 89:183, (August 27), 1927.
32.—Wilkins, W. T.: A Liver Cocktail, *J.A.M.A.* 89:967, (Sept. 17), 1927.

Cremation

Progress in the Disposal of Human Remains

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As far back as history goes, human beings have taken some pains in the disposal of the mortal remains of members of their families and those who were connected with them in any way. Some peoples have recognized the fact that the dead body contained nothing of that divine essence which they recognized as their friend; while others have been unable to convince themselves that one portion of inanimate flesh is quite like another and have instituted various practices whereby the physical tenements once occupied by their dear ones might be preserved from dissolution as long as possible.

The Egyptians seem to have carried this idea of the preservation of human remains further than any other nation, although the ancient Peruvians also mummified their illustrious dead. In both these countries, however, because of the high cost of the mummifying process, only the rich or famous received this attention, the bodies of the poor being sealed in niches or buried in the ground. Among certain classes of people in the United States there seems to be a tendency to return to something like these practices, and careful embalming, together with the use of impervious metal caskets and underground vaults of concrete are rather widely used.

Historical Notes

Evidences have been found that human bodies were disposed of by burning as long

ago as the Bronze Age (tenth century B. C.) and it is well known that cremation was in great favor among such highly civilized peoples as the Persians, the Babylonians, the Greeks and the Romans. It is widely used today in many parts of the Orient.

For some reason, the Christian Church threw all the weight of its influence against the practice of cremation and forbade it under pain of penalties in this world and the next, so that even nations which had been wont to employ this highly satisfactory method abandoned it when they came under the influence of Christianity.

Many centuries elapsed before anyone dared to defy the authority of the Church and dispose of the bodies of their dead by burning, and credit for the restoration of the practice is due to the Italian physicians and chemists, Polli and Brunetti, and to others who took a bold stand in favor of it.

The first crematory in Europe was built in Milan in 1877 and it became so popular that, by 1882, Italy had five other institutions of the kind.

The idea spread more slowly in Germany. Gotha built the first German crematory in 1878, but a second (the one at Heidelberg) was not constructed until 1891, and the third (in Hamburg) in 1895.

Other European countries were still slower in taking action in this matter—Switzerland, 1889; Sweden, 1887; Norway, 1899; France, 1889; England, 1902, and Denmark, 1906.

The first interest in cremation manifested in the United States was in 1874 when the "Society for Cremation of the Dead" was organized in New York City. The first crematory in this country was built in Washington, Pennsylvania, in 1876, by Dr. F. Julius Le Moyne, who was an enthusiastic advocate of the practice and whose own body was cremated in 1879.

In 1881 the New York Cremation Company was organized and a crematory was built in the metropolis to serve as a model. From this time the idea spread rapidly until now most of our large cities are equipped to dispose of bodies in this manner.

In considering the question of the disposal of human remains there are three main points to be considered: the hygienic, the esthetic, and the economic. For some, the occult aspect of the case is also of importance.

Hygienic Aspects

Numerous and extensive investigations have demonstrated that bacteria present in a body at the time of its burial will live in the soil for years and may at any time escape into the water supply; to say nothing of possible infection of those who may have occasion to work in the soil where bodies have been buried.

In addition to this, ptomaines and other solid and gaseous products of decomposition may and undoubtedly do escape, not only into neighboring water supplies but also into the air, so that the vicinity of a cemetery is always an insalubrious neighborhood for human habitations.

Thus it appears that cremation, especially of the bodies of those who have died of any contagious or infectious disease, is a hygienic measure of great importance. This is especially true in the large centers of population which are constantly increasing in number as well as in size, as the packing of human bodies into the soil of large cemeteries, which are frequently situated in densely populated neighborhoods, cannot fail to have an unfavorable influence upon the health of hundreds.

Esthetic Considerations

Although there are many people who still shrink from the idea of having the bodies of their relatives cremated, there is, of course, no doubt that this is a far more esthetic process than that of burying them in the ground. The fact that few have the courage to visualize or contemplate the things that happen to a buried body readily indicates which method should be preferable by tender-hearted people.

Economic Factors

Objectors to cremation have sometimes contended that cremation takes from the soil much nitrogenous matter which it needs. The reverse of this is true. When a body is buried in an impervious coffin or an underground vault no enrichment of the soil can take place. Even under ordinary conditions the decomposing matter is so far below the surface that a long time must elapse before any effect can be produced in the vegetable growth above. In any case, crops are not grown in cemeteries, and seepage into the surrounding soil is a long and leisurely process.

During cremation all of the nitrogenous elements in the body are vaporized and escape into the air, being returned to the earth by the next rain, where they improve the soil far more than can be done by a body decaying in the grave.

From the standpoint of personal economics the matter comes closer home. Burial

space, especially in city cemeteries, is very costly and the people who dread the idea of cremation for sentimental reasons are almost always the ones who desire to incase the bodies of their dead in expensive bronze coffins and seal these into concrete vaults. All these things cost a great deal of money; so much so that it is not infrequent that a family will spend the entire savings of a lifetime in order to give the remains of a dear one a "decent burial."

If cremation is to be practiced, the lighter and more readily combustible the coffin is, the better, so that much expense can be saved here. Moreover, the ashes which remain after the fire has done its work are small in amount, wholly inoffensive, and may be—frequently are—simply scattered on the ground, so that no burial space is required. Those who wish to bury the ashes can do so in a space much smaller than that required for the accommodation of a coffin and thus make another notable saving.

Crematorium and Mortuary Chapel, Bohemian National Cemetery, Chicago.

The charge of cremating a body, in Chicago, is only $30, which includes the cost of a simple container for the ashes and also, as a rule, the use of the chapel for the funeral service, if desired.

Arrangements for Cremation

The cemeteries which have a crematory usually house it in the lower part of the mortuary chapel, so that there need be little or no handling of the coffin when the funeral ceremony is over. The first Chicago crematory was built in Graceland Cemetery in 1895. This is still a very pleasing and efficient institution. The largest and best equipped plant is at the Bohemian National Cemetery.

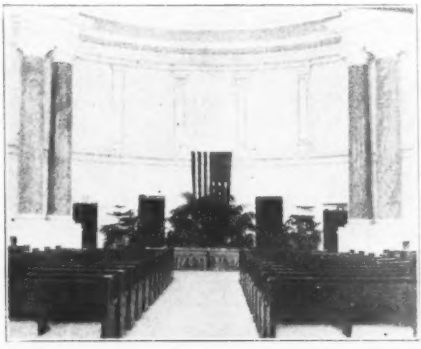
If a body is to be kept at all after death it may be lightly or completely embalmed. It is brought to the chapel in a wooden coffin without any metal lining and placed upon the bier, which stands over a movable

Crematorium and Chapel, Montrose Cemetery, Chicago.

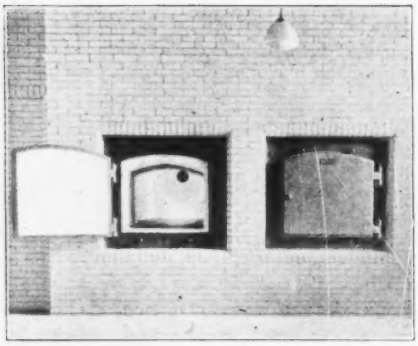
section of the floor. If death has been due to contagious disease the coffin is not placed in the chapel but carried directly down into the cremation room.

When the service is over, the friends and relatives go out and leave the coffin resting quietly in the chapel. There is none of the heart-breaking ritual of lowering it into the grave and covering it with earth. One or two members of the family usually remain until the body has been placed in the retort, and sometimes until the cremation is complete.

The coffin is lowered from the chapel by a lift and wheeled to the front of the retort. The handles, name-plate and any metal work on the outside are removed. The door of the retort is opened, the coffin slipped in and the door closed. About one hour later (starting with a cold retort) the cremation is complete, and an hour after that, if necessary, the ashes can be removed, though it is better to leave them three or four hours or over night.



A Mortuary Chapel, interior.



Crematory Retorts, showing front doors.

The retorts are made of heavy fire brick and are usually heated by some form of burner using fuel oil and air under heavy pressure. The jet or jets of flame are not directed upon the body, but against the top and sides of the retort.

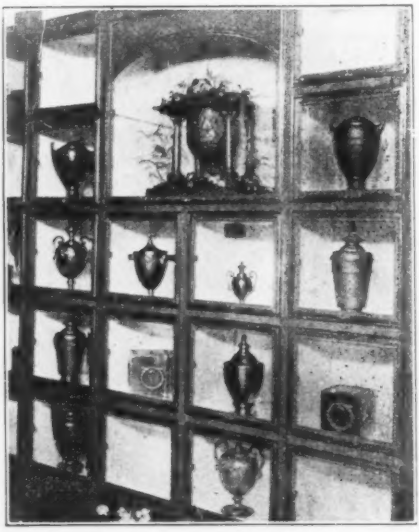
The coffin and clothing, which are dry and inflammable, are promptly consumed and the ashes are swept out by a powerful air blower, through a smoke burner and into the chimney, from which nothing escapes but odorless gases and a little fine dust.

The heat gradually evaporates all the moisture from the body and when this point is reached the temperature of the retort is from 1,600° to 2,400°F. The fuel oil is now shut off and the oxidizing process, by which the remains are converted into carbon dioxide and nitrogen, proceeds by means of the intense heat and a powerful forced draft. At the end nothing remains but the ashes of the bones—almost pure calcium phosphate.

When the retort is opened the ashes are removed with a heavy steel brush, which reduces the bones to a coarse, granular powder. A magnet removes all the nails, screws and tacks which were used in the construction of the coffin. The ashes are placed in a small bronze box, 5x5x5 inches, or in a simple stone urn, or are scattered to the winds among the shrubbery of the cemetery, as directed by those responsible. The receptacle containing the ashes may be taken home by the relatives; buried in a small grave; stored in the vaults of the cemetery (at a charge of $5 a year); or placed, in a more or less elaborate urn, in the columbarium which is provided by some of these institutions, where a permanent niche may be purchased, the same as a lot outside. Some of the urns deposited in this way are very beautiful and costly.

Simple and elaborate bronze urns. (The one at the left cost $35.00; at the right, $180.00.)

Before cremation can take place the authorities must have a certificate, signed by the person responsible for the disposal of the body, directing that it be disposed of in this manner and stating what is to be done with the ashes.



Columbarium, or Urn Room.

The people in charge of the crematories feel that this method is steadily gaining ground. In Montrose Cemetery, Chicago, there were, in 1924, 1,403 burials and only eighty-two cremations; while in 1925 there were 1,322 burials and 115 cremations—the percentages being 5.8 percent in 1924 and 8.7 percent in 1925. If the figures for the early part of 1926 continue, the percentage for this year will be still higher.

In many respects our present methods of dealing with human remains are unhygienic, unesthetic, uneconomic and, in some

instances and localities, absolutely barbarous.

It is to be hoped that the simple, cleanly, dignified and civilized process of cremation may rapidly replace all less satisfactory ways of disposing of the bodies of those who have gone on to other fields of endeavor.

Intravenous Medication

By B. B. PARKER, M.D., Allerton, Ia.

IN this day of progressive medicine and of the advent of new ideas of theory and practice, when well founded methods of treatment for various conditions are found to be erroneous or inadequate, it requires considerable study on the part of the general practitioner in order that he may keep in touch with the newer and better methods of treatment and yet not be chasing after false gods.

The method I propose to discuss is not exactly new nor do I claim it to be original. This method has been practised to a greater or less extent for the past 25 years.

For several years I have been using, with entire satisfaction, the method known as direct or intravenous medication, and therefore have elected to present some of the information and experience gained.

To begin with, we have always been made to believe that no foreign substance should be introduced into the blood stream, either by accident or design. It was taught that to do so would either destroy the normal constituents of the blood or, by causing laking or coagulation, would result in the formation of embolic processes which would be disastrous. We were also taught that the only possible exception to the rule was physiologic saline solution.

In recent years it has been abundantly proven and is now accepted that a great many medicinal substances may be given with safety by the intravenous route.

Among the first attempts at direct medication and the first variations from the administration of isotonic saline solution intravenously was made by Crile, in the treatment of shock. Crile struck upon the idea that adrenalin (epinephrin) might be advantageously added to the salt solution and he succeeded in using it by plunging an ordinary hypodermic needle into the tube of the saline infusion apparatus and injecting from 15 to 30 minims of adrenalin solution as the saline was introduced into the vein. The results were so prompt and surely obtained that the end justified the means. Thus the foundation was laid for one of the chief assets of the "Crile Shock Treatment."

Almost the first actual medicinal substance used intravenously was Ehrlich's "606," which was thought to be the ideal medication for syphilis; and, as it was intended that one massive dose of arsenic should kill all the spirochetes in the body, it was advocated as best used by the intravenous method, as in that way the maximum effect would be secured in a minimum of time.

From time to time other medicinal agents have been tried and either accepted or rejected as useful for this method, until at the present time it is possible to obtain a great many that are especially prepared for intravenous use.

Since the list obtainable and serviceable for many conditions is too extensive for the scope of this paper it is my intention to mention only those I have found to be most useful to me.

Rheumatic Conditions

No physician doing general practice is called upon to treat any one condition or ailment more often than he is consulted for rheumatism and allied conditions. Leaving out of the question the search for and removal of sources of focal infection, relief of pain and abatement of other symptoms is the first requirement, and I find that sodium salicylate is certainly the main sheet anchor.

It is of the greatest importance to divide the acute cases from the subacute and chronic, as the treatment must vary.

In acute articular and muscular rheumatism, the intravenous injection of 15 to 30 grains (1 to 2 Gm.) of sodium salicylate, daily, until the acute symptoms subside and then twice weekly for several weeks, has proven to be almost specific in my hands. In sub-acute and chronic cases I find that it requires the addition of iodine in some form and I use 15 grains (1 Gm.) of sodium iodide and 30 grains (2 Gm.) of sodium salicylate. It would seem that it is

probably true that sodium salicylate is particularly effective in uncomplicated cases due to streptococci and, as the greater percent of all acute cases are due to mixed infection, it requires the alterative action of the iodine with its tendency to stimulate the production of leukocytes and increase their phagocytic action.

Inasmuch as most cases of tonsillitis are caused by streptococci, and as tonsillitis bears a direct relation to rheumatism, it is rational therapy, and we find that acute tonsillitis responds quickly to intravenous injections of sodium salicylate.

Given an acute case of rheumatism, we prescribe rest, elimination, a meat-and salt-free diet and the administration of sodium salicylate intravenously in doses of 15 to 30 grains (1 to 2 Gm.), once each day until relief is obtained and then continued twice weekly.

Methenamin

Next we find that hexamethylenamin (methenamin) meets definite indications in the line of antiseptic action in deep structures.

Since the Mayos began to use methenamin for treating cystitis, nephritis and cholecystitis, it has steadily gained favor until it is now believed to be the best remedy when an infective process is thought to be present in the gall-bladder or some other deep structure, whether it be the frontal sinus or the mediastinum or in the substance of the kidney.

Hence it is of interest to note that methenamin is now prepared for, and successfully used by the intravenous method. It is put up in 5 cc. ampules, containing 24 grains (1.6 Gm.) also in other sizes and strengths). I have found that, when administered in this dosage and by this method, the results obtained surpass those of any other remedy I have tried, and this is particularly true in old, chronic infected gall-bladder cases. I have given this dose every second day for four weeks, and then twice weekly for two months, with good results and no untoward symptoms.

Iron and Arsenic

The intravenous administration of iron and arsenic for that class of patients who complain of being tired, weak, nervous and lacking energy, and particularly in anemic young girls, is a source of satisfaction to both the physician and the patient.

We have all been accustomed to give iron and arsenic in the form of Blaud's pills, or we have given "I. Q. & S." or syrup of hypophosphites when we felt that our patients needed a socalled tonic. But my experience has been that the results were very uncertain.

In those patients showing weakened and anemic conditions, other than pernicious anemia, I have found that a series of from 6 to 12 intravenous injections of iron and arsenic promptly improves the general condition and rapidly increases the red cell count and the hemoglobin percentage. The solution used is 5 cc., containing 1 grain (65 mgm.) of iron cacodylate, and is administered twice weekly.

Sodium Iodide

Sodium iodide alone answers the need for prompt action in cases of bronchitis, bronchial asthma and exophthalmic goiter. In bronchitis, sodium iodide, administered intravenously, promptly relieves irritation, relaxes the bronchioles and thins the secretion, thus rendering it more readily removed by coughing or absorption.

The antispasmodic action of sodium iodide and its liquefying action account for the relief obtained when an asthmatic case is given this drug intravenously. We see it give some patients relief in 5 to 15 minutes. Obviously it fails in cardiac asthma.

In many cases of hyperthyroidism I have secured prompt amelioration of symptoms by the administration of 30 grains (2 Gm.) of sodium iodide, intravenously, three times weekly, although some advocate daily injections and increasing dosage. One investigator reports the administration of as much as 30 Grams of sodium iodide at one intravenous injection without untoward results.

Since having made this observation in regard to goiter patients it has been a source of satisfaction to find that many of the leaders among the profession are now advising the administration of iodine, in the form of Lugol's solution, to exophthalmic goiter patients, either as a treatment or, more particularly, as a preoperative measure.

Digitalis

Digitalis, I believe, comes next in point of usefulness, and while it is perfectly safe to use digitalis intravenously it is the only agent I have ever used in this way which produced undesirable symptoms. I have had 1/5 grain of digitalis produce a severe reaction, followed by weakness, diarrhea,

headache, hyperpyrexia, herpes and lowering of the blood pressure.

Although the oral dose of digitalis leaves is 1 grain (65 mgm.) and the recommended intravenous dose is the equivalent of from 1/5 to 1 grain, I find that 1/10 grain (6.5 mgm.) is a much safer dose to be given at first and that the first dose or two, at least, should be given with the patient in bed.

In cases of severe reaction it takes from 24 to 48 hours to overcome the untoward symptoms completely. After the undesirable effects wear off the heart shows improvement in tonicity and regularity.

It is my opinion that the physician just taking up this method of medication had better steer clear of digitalis for a while, for if he should stumble onto a severe reaction with his first case he will get the scare of his life and abandon a good cause. If ever a patient ever looks and acts as if death were imminent, he surely does so when in the midst of a reactionary chill after digitalis, given intravenously. However, I have learned that they do not die and that the distress can be readily relieved by the hypodermic injection of 1/100 grain (0.65 mgm.) of nitroglycerin, repeated as required. Strophanthin is less toxic and can be used to advantage where digitalis is indicated and we desire to use the intravenous route.

There are many other preparations which may now be secured and given by this method. But the ones I have mentioned have served me best and I present them in order to stimulate interest in this procedure.

Arsphenamines in Vincent's Angina

Arsphenamine and neoarsphenamine we have used intravenously, of course, in the treatment of syphilis in its many manifestations, but in our locality the most satisfaction is obtained, I believe, in a more common and distressing condition which, unfortunately, we see more of since the War than we do of syphilis. I refer to Vincent's angina or "trenchmouth." Having tried with varying success many of the remedies suggested as being useful or specific for this condition, I have settled upon the intravenous injection of neoarsphenamine as the one offering uniformly good results. I am mindful of the fact that our colleagues claim to secure (and probably do so) good results from arsenic solutions used locally, but having tried both methods I am convinced that the action desired is more surely obtained by the intravenous method of administration. In my hands it is rarely necessary to give more than one or two injections for the ordinary case.

Other Remedies

At the present time we are using collodaurum, intravenously, in the treatment of inoperable carcinoma, with apparently good temporary results. It produces a sense of wellbeing, relieves pain, the appetite improves and the patient gains in weight.

In the treatment of the toxemias of pregnancy and preeclampsia, the administration of a 10-percent solution of magnesium sulphate, in 20 cc. daily doses, has proven beneficial but has not lowered the blood pressure in our cases. We feel that, by rendering the blood less toxic, we have been able to carry our cases through to delivery without operative interference, but have been disappointed by the blood pressure remaining high.

The intravenous administration of glucose (dextrose) solution successfully combats acidosis in wasting diseases and in pre- and postoperative cases. It is usually well to give twenty units of insulin simultaneously to insure the oxidation of the glucose. The intravenous administration of mercurochrome solution in septic conditions has not appealed to us as safe, sound and secure.

It is my belief that the preparations used by this method should be purchased from standard manufacturers specializing in this line.

If pain and aching are complained of, locally or extending up the arm, either the needle was not in the vein or the preparation used was not suitable for intravenous use and caused irritation of the vein. In the latter instance the vein will become sclerotic and subsequent injections will be very difficult if not impossible; also, if the injection has been painful, the patients object to further treatment by this method.

I have had some manufacturers' products cause sclerosis and have subsequently used their preparations in the injection treatment of varicose veins and secured admirable results, equal to ligation or section of the affected veins.

Advantages of the Method

1.—*Accurate Dosage.*

It is absolutely certain that one may guage the dosage accurately and control the regularity of administration and thus

eliminate the uncertainity of the teaspoon and self-medication; also the uncertain element of absorption.

2.—*Simplicity.*

The technic is almost as simple as the ordinary hypodermic injection.

3.—*Prompt Action.*

That the agents administered by this method promptly reach the scene of action, unaltered except by dilution, may be assumed from the fact that patients given any of the preparations containing iodine complain of the taste in less than three minutes from the time of administration.

4.—*Avoidance of Gastric Irritation.*

Many substances which are irritating to the gastro-intestinal tract, even in small doses, may be given in large doses by this method with impunity. This one point alone will readily appeal to thoughtful men as a great advantage in many debilitating conditions where the patient's nutrition is at least as important as his medication.

5.—*Psychologic Influence.*

To set your patient down by your table and carefully administer any medication which he can readily see thrust directly into the blood stream must and does have a decided psychologic effect.

6.—*Results.*

The rapid change of the clinical picture of the disease and the general improvement of the patient's mental and physical condition, as can be readily demonstrated, is sufficient to recommend this method of treatment.

7.—*Remuneration.*

It is easier, from the standpoint of dollars and cents, to secure an adequate fee for an intravenous treatment than for any other kind of office treatment with which I am familiar; and because a certain amount of skill and special technic are required, the fee should be commensurate with the service rendered.

Technic

The technic, while requiring painstaking care and a certain amount of skill, can be mastered by any physician sufficiently interested to follow a few rules and who has nerve enough to try it.

The preparations used for intravenous medication are put up in sealed ampoules of 5 to 20 cc. capacity and are ready for use without dilution or other modification, except the arsphenamines, which must be prepared at the time of injection.

I use either a 10 or 20 cc., glass syringe of the Luer type, and either a 23 or 25 gage needle, ¾ inch long, and I use a *new needle* for each injection, as the needle must be very sharp.

To sterilize the syringe and needle I use 95-percent alcohol, followed by sterile, distilled water. The only other equipment necessary is a soft rubber catheter and an ordinary hemostat. File the neck of the ampoule; break off the tip; draw the desired dose into the syringe and attach the needle; wash the patient's arm with alcohol and apply the catheter as a tourniquet at the middle of the arm by fastening it with the hemostat.

Pick out any prominent vein at the bend of the elbow and insert the needle directly over and parallel with it, bevel up and directed toward the body. Run the needle under the skin for ¼ inch before trying to enter the vein. Raise the syringe and cause the needle to engage the wall of the vein, when a slight thrust will cause the needle to enter the vein with an almost audible "pop." Lower the syringe and slide the needle along the lumen of the vein for ¼ inch. This is important in order that a slight movement of the arm or the syringe will not cause the needle to slip out of the vein. After a few trials one learns, by the sense of touch and by the "pop" that occurs when the needle pierces the vein wall, whether the needle is properly placed. Also, as soon as the needle enters the vein, blood will flow back into the syringe or can be drawn back by slight traction on the piston.

As soon as you are sure that the needle is in the vein, release the tourniquet and slowly press the piston home. It should take from 5 to 15 minutes for the injection, depending on the amount of solution used.

When the contents of the syringe have been injected, remove the needle quickly, apply light pressure to the puncture and elevate the arm for one or two minutes. No dressing is required, although we usually apply a small piece of adhesive plaster or a drop of collodion. The vein is not permanently injured and may be used repeatedly for the same purpose.

If the technic is correct and the preparation used is correctly prepared and injected slowly, there will be no pain; but if the needle is not correctly inserted in the vein the patient will complain of severe pain and a large ecchymotic area will appear in a few hours, although no permanent damage need be feared.

Facing the Future in Medicine

By SAMUEL J. ROSE, M.D., Lexington, Ky.

LET us face the facts regarding the younger men who are rapidly being graduated in medicine. There are a few things that they will be able to do, and do well, that we cannot, or at least *are* not, doing.

For example, the public is gradually awakening. It is at present growling about the socalled group medicine, which has many virtues and many faults. It is not an uncommon occurrence to have patients tell us they have been "robbed" by this or that group. They will tell us they went to the so-and-so clinic, where they were registered and given a card. They were ushered into the office of one of the doctors, who examined one part of the body *thoroughly* and then asked, "Have you seen doctor so-and-so?" The patient was then sent to the next one, and he, in turn, did his "act". This may be carried on until the patient has been to ten or fifteen men in the group—all doing their parts of the work carefully and conscientiously. He finishes with a thorough general examination, including blood, urine, x-ray, sputum, blood pressure and whatever else he may need and winds up with a bill of anywhere from $30 to $100. *This includes no treatment.* All he gets is *advice*, and no single man of the group has a clean-cut picture in his mind as to the real trouble from which the patient suffers, assuming that his case is at all difficult. Result: The patient goes out and says he was robbed. The doctors are right and, in a way, the patient is also right.

Now let us change the picture, for we are *going to have it to do.*

The All-Around Doctor

The patient enters a well-equipped office. *One man* is running it. He is assisted by graduate nurses, or, at least, intelligent attendants. This man will measure the blood pressure; take blood and urine for examination by the *State laboratory;* x-ray the patient, should he need it; do a blood count; make a uranalysis to check against that made by State laboratories; and examine into any special phase of this particular patient's affliction.

He will treat hemorrhoids by surgery, physical methods or injections; remove diseased tonsils by whatever method seems best; put his old asthmatics on home treatment or teach them how to treat themselves; send patients to their dentists if they have oral infections; shrink turbinates; coagulate external epitheliomas; give intravenous injections of arsenic, sodium iodide, iron and the like, when indicated; give positive galvanism to women who bleed profusely during menstruation; give ultraviolet radiation to patients needing an increase in iron, calcium and phosphorus; administer a hypodermic of morphine or other drug, where indicated; correct lumbosacral malformations; and wind up by giving plenty old-time *medicine*, such as mercury, quinine, digitalis, strychnine, bromides, etc.

The patient will pay nothing for blood and urine examinations, because he pays for these when he pays his taxes. He will pay for his *treatments*, and that should be enough. The doctor should be *thorough*, but much of the *necessary* laboratory work is done by the state, *free*. Why should the patient pay for the doctor's curiosity?

I expect some vigorous criticism of this statement, but think it over for a moment. Suppose you take your brokendown automobile to a garage. The garage man examines it. He tells you, "Doctor Doe, your car has been examined carefully and that examination costs you $25. Now it will take $100 more to fix it." What are you going to say to the garage man? Better not put it in writing! Your patient feels the same way.

Do not think I am advocating free examinations. Merely think it over and see how it is going to turn out. After all, the public will do the deciding. All the ironclad rules we may make will have no bearing on them in the long run. We might as well see the light and conduct ourselves accordingly. The newer physicians will be much better equipped than we are, in some respects, and we must either correct our own mistakes and conform to the public's demands, or it will correct them for us.

As an example, look back on our good old colleagues who take pride in telling us that they, "Read medicine for *six whole*

months, under Doctor Roe, their "preceptor", and see what they are doing now. We look on them with pity.

Let us get the public's confidence once more. But how? *Individualization!* Let us take a patient and examine him *from one end to the other*. If we have not the equipment at present we can buy it on credit. Let us not be satisfied with *buying* it; let's learn how to *use it as well as anybody*.

There are not many of us—some 145,000. That's not many in one hundred and ten millions of people. If we want to fight, let's pick on outsiders instead of on other doctors. We all make mistakes. Why try to advertise your colleagues' blunders and extol your own virtues? We all live in glass houses. Let's admit facts, at least to ourselves, and vow to do better. The end results will be that both patient and doctor will profit.

Common Sense Practice

We all advocate preventive medicine, and we are the only group of men that, through our attempts to teach the public how to stay well, actually talk money out of our pockets. What could be more noble? Why not go a step farther? Why not tell our patients that acute infectious diseases, such as typhoid fever, mumps, measles and the like are mostly nursing jobs, the bed playing the larger part in treatment? Teach them how to take temperature and count the pulse, keep the bowels open and sponge to lower temperature. This may sound as though we are doomed to starve; but the dentist, at one time, felt that soon all teeth would be extracted and he would starve—but he has not starved. Neither will we.

The chronic case will keep us going, for he is like the poor—always with us. Equip yourself to treat him adequately, instead of having him wear out his shoes going from one doctor to another and finally wind up in the hands of a quack or irregular. We know that his focal infections play a large part in his chronic condition; therefore, if we cannot remove these foci, let us send him to some one who can. We will be repaid by other patients he will send us, that we *can* treat.

We cannot all be Mayos, but we can all make clean, honest livings if we are thorough, conscientious and honest with those who call on us. We know the value of medical and surgical diathermy, heat, ultraviolet radiation, galvanism, the sinusoidals, infrared rays, and last but not least, our old friends such as calomel, the salicylates, arsphenamine, diuretics, diet, psychotherapy and the like. We have a *legal right* to use *all* the above agencies. Let us *learn* how to use them, and, after we have examined our patient carefully and know his trouble, let us use our knowledge and *do something* for our patient, instead of telling him, "Take these pink pills and if they do no good I will try another one." Both patient and physician will benefit by such action..

I mean no offense to any physician, anywhere. The object of this article is to stimulate thinking, discussion and constructive criticism, in the hope that all of us will be helped. If my aims are even partially achieved I will be amply repaid for any criticism that I may receive for my attempt to correct some of our faults; for our faults, no matter how many they may be, only prove that, after all, we are human beings.

124-28 East Main St.

The Seminar

WE begin a new year with several important changes in this important department.

We all deeply regret the circumstances which compelled Dr. Blech to relinquish the editorship of the Surgical Seminar, which he has conducted so ably for the past six years, but this department has been so popular that we have decided to continue it, with some changes.

In future this will be known as **The Seminar**, as indicated by the new heading, and the discussions will not be limited to surgical cases, but will include medical conditions as well. We feel that most of our readers see more medical than they do surgical cases and will welcome seminaristic discussions in the field of internal medicine.

Dr. Max Thorek

When surgical problems are under discussion, our readers will, hereafter, have the benefit of the keen mind and ripe judgment of Dr. Max Thorek, Chief Surgeon, American Hospital, Chicago, whose reputation in his specialty is world-wide. Dr. Thorek has joined us as Surgical Consultant for **The Seminar.** His work and writings are well known to our readers, who have had the privilege of seeing a number of his articles in our pages. More of these will appear, from time to time. We hope you will welcome Dr. Thorek royally. Any who wish to communicate with him directly can address him at the American Hospital, 850 Irving Park Blvd., Chicago.

Medical cases will be handled by the managing editor, with the assistance of the members of the staff and his personal friends among the prominent men in our profession.

We hope that large numbers of our readers will take advantage of this splendid opportunity to submit their difficult cases for wide discussion by keen and thoughtful men, and will also stimulate their own professional thinking by participating in the discussion of the cases submitted. This is *your* department, conducted for *your* benefit. *Use it!*

In preparing cases for presentation in **The Seminar** it is important that they be worked up as fully as possible. All *pertinent* points in the history and present condition should be stated accurately; but unimportant data should be omitted, to economize space. All indicated laboratory examinations should be made and the results included. If the patient dies, an autopsy should be performed, if at all possible to do so, and the findings fully reported, for use in the final solution of the problem.

It is not at all necessary that our contributors use a typewriter (though all editors welcome a neat, typewritten manuscript). If you have **ideas**, *send them in*—that is what we are looking for—even if they are written with a pencil on scratch-paper. In that case, write as legibly as you can, please.

If you *have* a typewriter, please use it; and remember that the best manuscripts are on letter sized paper and typed with *double spacing* and wide margins.

All communications for this department —whether problems, solutions or questions —should be addressed to, **The Seminar.** CLINICAL MEDICINE AND SURGERY, North Chicago, Ill.

Help us and let us help you. Let us make this a *real symposium* of the thoughtful physicians of the United States!

GEORGE B. LAKE,

Discussion of Problem No. 9 (1927)

By Gen. George Acheson, St. Martins, N. B., Can.

[**Note:** *We regret that this discussion was received after the December number had gone to press, but as it contained a thoughtful consideration of the problem we publish it, thus belatedly. The final solution of this problem will be found on page 939, of the December issue. Surgical Problem No. 1 (1928) will be found on p. 940 of the December issue. Discussions and solution of this problem will appear in the February, 1928, number.*—ED.]

This case of Dr. Robertson's (see CLIN. MED. & SURG., Nov., 1927, p. 856; and Dec., 1927, p. 938) is very interesting, because it is typical of many cases about which we are consulted, where indefinite symptoms are spread over a number of years—periods of ill-health, more or less marked, alternating with apparently normal healthy states—until finally some acute pathologic condition shows itself, which may or may not have an etiologic connection with what has gone before.

This patient gives a history of occasional attacks of "indigestion," over a period of five or six years, with pain on both sides of the lower abdomen, but not sufficiently severe to cause her to call for medical aid, though she complained that her left side had been "sore" for a long while. We are unaware, therefore, of the nature and cause of these pains. Interjected into this history is pregnancy, with a normal delivery and uneventful puerperium, except for chronic constipation. Then, about six weeks after delivery, having eaten some water melon, she suffers from nausea and vomiting, and a lax condition of the bowels, with slight cramps in the pit of the stomach. A vegetable purgative prescribed for this caused several movements, with nausea and cramps, and she felt weak and shaky, though able to go to the doctor's office.

This apparently was the first time any systematic examination was made of her case, when the following abnormal conditions were noted: temperature 101°F.; pulse 114; coated tongue; slight suggestion of rigidity of right rectus muscle; slight general abdominal tenderness; rumbling in the cecal region; and a mass giving the impression of a thickened colon; otherwise nothing noteworthy. Two days later her temperture was 102°, and pulse 120; rumbling in the bowels is increased; but no further vomiting, and she was able to sit up in bed and move about with ease. An enema given the previous day had been followed by seven evacuations.

The most obvious diagnosis presenting itself to me is typhoid fever, an opinion based on the following considerations: (1) the occurrence of cases of that disease in the neighorhood; (2) the age of the patient; (3) lowered resistance to any form of infection; (4) irritable condition of gastrointestinal tract; (5) looseness of bowels, with too free response to laxatives and enemas; (6) gurgling in the cecal region; (7) coated tongue, rising temperature and pulse rate; (8) some abdominal cramps and tenderness. To be sure, none of the foregoing are pathognomonic of typhoid, but their concurrence is suggestive.

I should like to know if there was severe headache at any time, or epistaxis; what was the nature of the discharges from the bowel, especially as to odor and consistence. Though probably too early for a Widal test, I think the blood count and reaction should be taken. Was there any enlargement of the liver or spleen? Did the temperature show the typical evening and morning excursions, with a daily rise?

Regarding the treatment given so far, I have no criticism to offer; of necessity it must have been largely expectant.

If, after a day or two of careful watching, and a trial of all the diagnostic methods of proving or excluding typhoid, we conclude this is not the disease we are dealing with, I should be inclined to suspect chronic appendicitis. This might call for surgical therapy, but only when every other possible diagnosis has been excluded.

All chance of focal infection should be investigated, and, if suspected, given appropriate treatment.

Surgical Problem No. 2

Submitted by Dr. Isaac E. Crack, Hamilton, Ontario, Can.

Young man of 19 whose maternal grandfather was known to have been a hemophiliac. One brother, four years older, nearly bled to death on two occasions; once following teeth extraction and once from

an industrial accident to his arm. He was saved with difficulty after several blood transfusions. In 1923, the younger boy had an acute mastoiditis and was operated upon. Bleeding continued for three days, necessitating blood transfusions.

On May 12, 1927, I was called to see him. He had been suffering for six hours from abdominal pain and vomiting; temp. 102°F.; pulse 110; resp. 20. Abdomen tender and very rigid; tenderness most marked over McBurney's point. Two hours later; temp. 102.3°; pulse 115; resp. 20. Abdomen unchanged; chest negative throughout; urine normal; white blood cells, 18,000. What are we to do in such a case?

A surgeon of experience was called in and, after consulting with the chief of the hospital staff, we decided to operate. A gangrenous appendix was quickly removed through a very small incision and the abdomen closed.

The patient's condition remained good from the time of the operation, at 5:30 P.M., until 6:00 the next morning, when symptoms of hemorrhage appeared—rapid, weak pulse, with collapse. A blood transfusion at 8 A.M. gave marked temporary improvement, but this lasted only a few hours. A second transfusion was done at 5 P.M., but the patient died during the following night. Postmortem examination showed the abdomen full of fluid blood.

Problem: Discuss fully the advisability of operation in such a case, with preoperative and postoperative measures to minimize danger.

Solid Tumors of the Ovaries

Remember that fibromas are very rare, do not attain large size and are usually unilateral.

Remember that there are no characteristic symptoms. The tumor is not painful, unless it should attain a large size and become wedged in the pelvis.

Remember that bimanual examination reveals a round, pedunculated tumor that is freely movable and not connected with the uterus.

Remember that removal of fibroids is the only treatment and delay is dangerous, because it is impossible to exclude malignancy.

Remember that cancer of the ovary is usually found in both ovaries and usually occurs in a cystic or solid ovarian tumor.

Remember that the early symptoms will be those of the benign growth in the ovary, but later, when malignancy occurs, the clinical picture changes materially. The tumor takes on a rapid growth, ascites develops, chronic peritonitis occurs, with cachexia and gradual loss of weight.

Remember that physical examination will reveal the presence of a pelvic tumor, which may or may not be ovarian in shape, but which is not connected with the uterus.

Remember that all tumors of the ovaries demand immediate removal. The benign may take on malignancy.

The malignant tumor should be removed at once, together with tubes and all enlarged pelvic glands.

Norberg's "Golden Rules of Gynecology."

Clinical Notes and Practical Suggestions

Proctologic Precautions

THE ease with which rectal diseases, especially piles, are supposed to be cured by the use of any of the many electrical devices or the handy syringe and ampule outfit, so widely advertised for this purpose, has in it an element of danger.

Many physicians and "twilight-zone" doctors, who have given but little, if any thought or study to the various complications accompanying hemorrhoids, begin to treat them before a thorough examination or diagnosis has been made, and, by so doing, many cases of rectal cancer in its early stage are undetected until they are so far advanced that nothing can be done that offers the smallest hope for cure.

An early detection of malignancy is the imperative duty of the proctologist. The deaths each year in the United States due to cancer have been estimated at approximately 100,000. This means that one death in every ten, in persons over ten years of age, is due to this disease. The object of this short paper is to call attention to the need of more thorough examination and diagnosis before instituting treatment for piles.

A number of these cases which have come to my attention, during the last year and a half, have been under treatment by one or the other of these methods, varying from one to six months. Histories in nearly all these cases had not been carefully made, if made at all. Usually only a digital or anoscopic examination was made.

A complete history is important. Less than a digital, proctoscopic and sigmoidoscopic examination, made with a well-lighted instrument, is pure negligence. This is especially true if symptoms suggestive of malignancy exist. A short period of anesthesia may sometimes be needed in order to make the examination successfully. Sometimes the malignant growth is low down and can be felt easily by the examining finger. At other times a short proctoscope is all that is needed. Growths that are located higher may be brought down by the patient squatting and straining while a digital examination is being made.

Since growths are usually low in the rectum it is possible to obtain a specimen for microscopic examination. This is essential if any doubt exists It is wise to get a specimen from several different parts of some growths, for in conditions such as multiple adenoma it is possible to have malignancy in one part and not in another. The diagnostic laboratory should be the proctologist's best aid.

Many times it is difficult to pass a proctoscope because the growth fills the rectum. In such cases a short anesthesia will often produce relaxation and the mass may be passed and thoroughly inspected.

You cannot judge by the appearance of the patient, for as a rule patients having cancer of the rectum are well nourished until the disease is firmly established. This fact is deceiving. The assimilation of food in the upper digestive tract has not been greatly interfered with because the growth is located at the lower end of the intestinal canal and general toxicosis is not yet established.

Rectal cancer is the most common of all intestinal cancers and it is observed about as frequently as that of the uterus. If suspicious symptoms exist it must be looked for in young as well as in older patients, but it is most often found after middle age.

The earliest symptoms and those complained of most often are rectal fulness, associated with a dull backache and a weakness in the calves of the legs, when the desire comes to empty the bowel or after a bowel movement. Cases of morning diarrhea should be investigated carefully, especially if it occurs immediately on arising, with a tenesmus so sudden and

severe that it seems beyond control. After this may come a normal movement, to be followed later by small passages of mucus every hour or so, leaving a weak and trembly feeling in the legs and a general feeling of exhaustion and thirst.

When ulceration begins, the passing of blood and bloody, jelly-like mucus increases greatly and the patient may begin to complain of pain for the first time, due to extention of the growth into the surrounding structures. Cancer is not painful in the beginning, but it is exceedingly so in the later stages.

Progressive constipation with a feeling of rectal inertia, in patients who were previously regular, sometimes with alternating diarrhea, are suspicious symptoms.

After ulceration has started the patient usually begins to lose weight and takes on the cancer cachexia. For some time previously the mucus and stool has had a peculiar, fetid odor that once smelled is never to be forgotten, hence it is always wise to notice if this odor clings to the glove or instrument after the examination of a suspicious case. The odor of ulcerative colitis has a fetid character also, but most cancers, after degeneration has started, have this peculiarly characteristic odor.

As the early symptoms of ulcer and cancer are so similar it is always well to be on guard and take every precaution for the patient's good, and above all things, do not begin treating socalled bleeding piles by *any* method until a thorough and painstaking examination has been made and proved beyond doubt that you are right.

HARRY C. BARR, M.D.,

Cleveland, Ohio.

INTRAVENOUS MEDICATION

Here is my response to your questions on intravenous medication (see CLIN. MED. & SURG., Oct., 1927, p. 777):

1.—Yes, I use intravenous medication.

2.—(a) In syphilitic cases I use neoarsphenamine and **metaphen**; also sodium iodide.

(b) In cardiac cases, digitalin; epinephrin in cardiac failure.

(c) In metallic poisoning, sodium thiosulphate.

(d) In acute infections, metaphen.

3.—I get good results; have noted improvement in nearly all instances.

4.—Yes, there are advantages in this method.

5.—The advantages are:

(a) Quick effect of the drug.

(b) I can give medicine which cannot be given in any other way.

(c) The effect of the drug seems to be much stronger when given intravenously.

The disadvantages:

(a) I have found none in my practice, except occasional difficulty in finding a vein. I have had no slough, no reactions and no bad effects of any kind.

If sodium thiosulphate is used, larger doses of metallic salts can be given without producing dermatitis or kidney irritation.

6.—I believe that intravenous medication is employed too little.

C. J. HODDAP, M.D.,

O'Fallon, Ill.

BUTYN AND EPHEDRIN COMBINED FOR ANESTHESIA AND SHRINKING OF THE NASAL MUCOSA

At the A. M. A. meeting in New Orleans, in 1920, a report of the committee on local anesthetics was read by Dr. Emil Mayer, of New York. In discussing the report, Dr. W. C. Phillips, of New York, said that it was hoped that some day we could get away from the use of cocaine, because of its habit-forming nature, and requested that we use as little as possible and search for a substitute. Since then, I have been looking for a non-habit-forming drug with less toxicity than cocaine.

In the past few years butyn has been put on the market, and is a very powerful local anesthetic when applied to the membrane, but falls short of the effect of cocaine, because butyn has a tendency to congest the mucus membrane instead of shrinking it, as cocaine does; hence, it could not take the place of cocaine in making nasal examinations.

Within the past two years, ephedrine has been introduced. This drug has the power to shrink the mucosa, but it has no anesthetic properties. It occurred to me that by combining butyn and ephedrine, I might find an ideal substitute for cocaine.

I began, about eighteen months ago, to use a combination of 2 percent butyn and 1½ percent ephedrine to anesthetize and

shrink the nasal mucosa. I tried other percentages and, at the suggestion of Abbott Laboratories, I used a combination of butyn ½ percent and ephedrine 1 percent, and found it very efficacious. I have found this combination to give good anesthesia and ample shrinking of the nasal mucosa to enable one to examine the nose, to puncture antrums, to remove turbinates and posterior tips, and to do submucous resections.

In doing operations, I add epinephrin to minimize bleeding, just as I do when I use cocaine.

I have noticed, in one of my postoperative ethmoid cases, that this combination does not shrink the reformed tissue so well as does cocaine. This may be a case of idiosyncrasy in this individual.

So far, I have had no toxic effect from this combination, which I cannot say about about cocaine.

I have not injected this combination for local operations. I will leave that for some one else to work out, as I get good results from procaine. I feel sure that the combination of these drugs is going to find a large field in otolaryngology.

R. G. REAVES, M.D.,

Knoxville, Tenn.

HYPODERMIC NEEDLES

A satisfactory hypodermic needle is quite as essential to successful medication as a good syringe.

Suggested sizes are given below for the various uses.

Intradermal work and Schick test—26 gage, 5/16″.

Regular hypodermic needles—26 gage, ½″; 25 gage, ⅝″; 24 gage, ¾″.

Camphorated oil and serum—22 gage, 1″.

Intravenous work—Gravity—20 gage, 1¼″; Syringe—22 gage, 1″.

Intramuscular work—19 gage, 1¾″.

Aspirating—13 gage, 3½″ and 15 gage, 3½″.

Infusion—15 gage, 17 gage and 19 gage, 2″.

Tranfusion—Recipient—17 gage, 18 gage, 1½″; Donor—13 gage, 15 gage, 1½″.

Spinal work—18 gage, 3½″; 19 gage, 3″; and 20 gage, 3″.

Tonsil work—Special needle with long extension—23 gage, gold points, straight, ¾″; curved, ½″.

Wassermann Test—19 gage, 1¼″.

Abscess work.—Ingall's silver canula, flexible, with blunt point, 1¼″, 2¾″ and 4″.

Lachrymal work—Flexible silver canula with bulbous end; bent silver canula with flat end. Special gold needles, 23 gage, ½″, ⅝″, 1″.

Regional or Local Anesthesia:

For raising the wheal, 24 gage, ¾″.

For injection in the wrist, ankle, scalp, finger, toe—22 gage, 1¼″; 22, gage, 2″.

For paravertebral anesthesia (cervical block) (dorsal block) (lumbar block), 21-22 gage, 2½″; 20-21 gage, 3″; 19-20 gage, 4.″

For sacral anesthesia—also called Epidural and Caudal block, 20 gage, 3″; 19 gage, 3½″.

(*Needles with stylet*)—For spinal anesthesia—20-22 gage, 3″.

(*Needles with stylet*)—Abdominal field block—19-20-22 gage, 4″; 20-22 gage, 3″.

Splanchnic anesthesia—19 gage, 5″; Denman needle.

A great many special needles for intravenous, blood transfusion, spinal work and Wassermann test have been devised. Recently, however, the ordinary straight needle with a medium length but sharp point is given preference in intravenous and blood transfusion work.

The most frequently used special intravenous needles are the Fordyce needle, 20 gage; Graeser needle, 20 and 22 gages; and the Schreiber needle, 18 and 20 gages.

For Wassermann test—the N. Y. Board of Health needle, and the Petroff needle, all 19 gage.

For Blood Tranfusion Work—The Lewisohn 13 and 15 gage for the donor and 17 gage for the recipient, and the Fordyce 13, 15 and 17 gage.

For Spinal work—The Babcock 16 to 22 gage and the O'Brien 18 gage.

The above needles are made from seamless, high carbon steel, also from the non-rusting metals such as gold, nickeloid and platinum-iridium. As to the relative merits of these metals, it is largely dependent upon the purpose for which they are to be used.

Needles made of high carbon steel and properly tempered will take a keener cutting edge than any other metal. They also possess greater strength and stand up better in use. That is why most physicians prefer them.

Platinum-iridium needles, of 70 percent platinum and 30 percent iridium are quite hard, hold their points well and will not corrode or lose temper in the flame, pro-

vided they are not heated beyond a dull red color. They are also unaffected by chemicals. Platinum-iridium needles may be resharpened as often as is necessary, and if used with proper care, will give good service.

Gold and nickeloid needles are rustless and non-corrosive for most uses. They must, however, be sterilized by boiling as they will not stand the flame; the metal being slightly softer than steel or platinum-iridium, the points are more easily dulled.

Care of Hypodermic Needles

After using steel needles, they should be rinsed in alcohol or ether and dried. A wire dipped in oil or vaseline should then be inserted. Steel needles treated in this way will last much longer and will not rust.

When using platinum-iridium needles, the following caution should be observed: When sterilizing in flame, heat to a dull red which is sufficient to kill any germ life. Long continued excessive heat renders the needles brittle. Avoid lateral pressure as far as possible while introducing, as bending back and forward soon weakens the walls of the needle and causes it to break.

Frequent honing of steel, platinum-iridium, gold and nickeloid needles on an oilstone will keep the points smooth and increase their satisfactory usefulness.

BECTON, DICKINSON & Co.

ANALGESIA AND SEDATION WITHOUT NARCOTICS

During almost forty years of practice I relied upon morphine or opium derivatives, chloral, hyoscine and drugs of like character for the relief of pain; while in mild to severe insomnia and the various grades of nervous ailments, the bromides, trional, sulphonal, veronal, monobromate of camphor, valerian and several others were of marked value.

Unfortunately, the employment of powerful remedies had many disadvantages. With some, the danger of forming a habit had to be considered; others showed disagreeable after-results. Idiosyncrasies often prohibited their free use.

It was not until **allonal** had been introduced that the medical profession recognized the full value of this drug. Pain was, as a rule, quickly relieved and its sedative and hypnotic effects were rarely followed by any depressant action.

The following cases are cited from personal experience:

Case 1.—Retired sea-captain, age 81. For several years subject to attacks of acute indigestion with spasms of intense pain in the stomach, head and back. Highly nervous for days at a time; unable to sleep well; lost strength and appetite. Ordinary remedial measures had failed to bring relief.

One allonal tablet quieted nervousness, pain and headache. Another at bedtime produced restful sleep. During eight months of observation, never more than two tablets were taken in one day. As a rule, one proved sufficient.

Attacks became less frequent and less severe. For past four months improvement has not lessened. Pain, headache, nervousness or distress after eating disappear when one tablet is taken.

Case 2.—Banker, age 68. Gave a history of very painful attacks of lumbago. Several responded to hypodermic injections of morphine and hot applications, but their use always caused nausea, constipation, headache and induced an annoying nervous condition. Patient, in consequence, dreaded this treatment.

When I saw him an attack had just started. Two allonal tablets and a hot water bag, applied locally, relieved pain in half an hour. One tablet at bedtime produced refreshing sleep. Next morning, application of mentholated salve and heat was tried and repeated late in afternoon. At bedtime one allonal tablet acted well and all pain disappeared. No recurrence for three months.

Case 3.—Young woman, age 28. Abscessed tooth caused violent pain. Large doses of aspirin gave no relief but made her heart act badly. Three allonal tablets, followed with a cup of mild, hot tea stopped the pain. Tooth removed by dentist on following day, but patient was in a very nervous condition and unable to sleep. One tablet at bedtime for three consecutive nights restored normal conditions.

Eight women, suffering from sea-, car-, and motor-sickness, were each advised to take one tablet of allonal an hour before starting on a trip; dose to be repeated in two hours if necessary. All of this group were greatly benefited. Two assured me they were entirely cured.

In 7 cases of menstrual pains, allonal proved valuable. Treatment was started a few days in advance of the period.

In 6 cases of severe insomnia, small doses of allonal promptly brought lasting benefit.

Prostatic pain and that found in a number of genito-urinary diseases, headaches and some forms of cough are other conditions I watched carefully under this treatment and was gratified with the results. I much prefer the action of allonal to that of morphine.

The bromides are valuable drugs, in many morbid conditions, but there is diffi-

culty in masking their unpleasant taste. In *sedobrol cubes* this trouble has been avoided. A hot, palatable broth can be prepared with these in a few minutes; and each cube contains 17 grains of sodium bromide.

I have found this bromide preparation of great advantage, particularly when used in conjunction with allonal tablets, because the bromides alone can not relieve pain.

FRANK M. JOHNSON, M.D.,
Freeport, N. Y.

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[There is no question about the value of analgesics and sedatives in selected cases. Pain and nervous excitement are, in themselves, exhausting and destructive, especially if long continued, and not infrequently require symptomatic relief.

The disastrous results following the use of opium and its derivatives, as well as chloral hydrate and some other drugs, are, one would think, sufficiently well known to prohibit their use, except in cases of the gravest emergency; but the number of physicians, especially in the rural districts, who still use morphine, more or less routinely, for the relief of pain, is surprisingly large.

Before giving *any* analgesic, the careful physician will make an earnest effort to find out what is causing the pain and to attack the trouble at its source. It is dangerous to suppress this warning symptom until after a diagnosis has been made. It is to be hoped that, in cases 1 and 2, Dr. Johnson ascertained the cause of the indigestion and lumbago, respectively, and set about the removal of the etiologic factors.

We who practice medicine today are fortunate in having at our disposal a number of remedies, unknown to our fathers, which are prompt, powerful and relatively harmless analgesics and sedatives. There is the less excuse for us to abuse the derivatives of opium and other dangerous and habit-forming drugs.—ED.]

THE PROPHYLACTIC USE OF A COAGULANT IN NOSE AND THROAT SURGERY

The preoperative, oral administration of a blood coagulant has proven so satisfactory in the prevention of bleeding that it seems our recent experience with 48 cases might be of interest to others.

Since 1922 we have held annual clinics in New Madrid, Missouri, operating upon from 40 to 90 tonsil and adenoid cases each year. The work has always been done in a single day and time has been an important factor. The delay caused by hemorrhage has been one of the difficulties encountered. Much of the bleeding could not be classed as serious, but each case required some attention and generally prevented us from reaching the full quota of patients registered for operation.

To prevent this delay in the work and to increase the margin of safety to the patients, we administered, orally, **ceanothyn**, a vegetable coagulant, to all patients in our 1926 clinic. Results were so gratifying in all respects that we repeated the experiment in our 1927 clinic under more careful observation.

Our method of procedure this year was to establish the normal coagulation time and administer a ½-ounce dose of ceanothyn, orally, to each patient, about 45 minutes before the tonsillectomy. Immediately before the operation the coagulation time was again determined. Two technicians, working independently, made the coagulation tests.

The capillary tube method was used to determine the coagulation time. This procedure indicated an average shortening of coagulation time of 35 percent in the 48 cases which were operated upon in our 1927 clinic. The coagulation time before administering the ceanothyn ranged from 3 minutes 15 seconds to 6 minutes 45 seconds. The percentage of shortening of this time, following the use of the drug, varied between 12 and 52 percent, with the average as previously stated.

The data on the individual case is of interest inasmuch as postoperative examination of the patients substantiated our belief that the margin of safety to the patients was greatly increased by the accelerated coagulative action.

In these 48 cases there was not a single case of serious bleeding and only two patients exhibited sufficient oozing to require a postoperative dose of the coagulant. No symptoms of toxic action were encountered and no more nausea was evidenced than is usually apparent following tonsillectomy under gas anesthesia. Judging from our experience in previous clinics it was evident that postoperative bleeding had been

decreased at least fifty percent by the prophylactic administration of a coagulant.

Conclusions

The prophylactic use of ceanothyn, given orally in ½-ounce doses, shortened the coagulation time approximately 35 percent within 45 minutes after administration.

There was no evidence of toxicity, and postoperative bleeding was decreased at least fifty percent by the use of the drug.

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PERNICIOUS ANEMIA TREATED WITH COLLOIDAL GOLD (AUROL) (A Case Report)

The following report, while, of course, not at all conclusive, has points of decided interest.

The patient, Mr. C. V., a man 40 years old, enjoyed good health until September, 1918, when he was hit by a shell fragment, while serving in France. The wound suppurated until the following February, and since then he has never felt well.

He came under my care in January, 1923, at which time he complained of weakness, constipation, insomnia, severe headache and anorexia, with dryness of the mouth, throat and tongue.

A course of hypodermic injections of sodium cacodylate, followed by Fowler's solution, by mouth, caused a decided improvement in his condition (see report of blood examination in June, 1923), which continued until September of the same year, and may have been merely one of the remissions which are characteristic of this disease.

In November and December, 1923, he was in bed most of the time, and in January, 1924, he was unable to get about alone. At this time his red blood cell count was 1,800,000; his skin was lemon-colored; his ankles were greatly swollen; and he looked as if the end were near.

A repetition of the injections of sodium cacodylate again caused some improvement, so that he was able, at times, to be up and about, though most of his time was spent in bed.

These exacerbations and remissions continued until April, 1926, at which time I put him on a preparation of colloidal gold known as aurol, giving him 15 minims in water, half an hour before meals, increasing at times to 30 minims.

There was no marked improvement for about four months, during which time he suffered from an itching, pustular eruption on the head and cervical region and to some extent on the body. This may or may not have had any relation to the drug being given, and it cleared up after several months.

About September, 1926, he began to improve markedly, and this improvement has been progressive, without any exacerbation of his malady, for more than a year. He now eats all kinds of food with relish, sleeps well, is free from pain (except a slight burning sensation in his throat, at times), has a good color and says he feels well. He is doing heavy work every day.

During the time he has been under my care he has been seen by a number of physicians, including several medical officers of the Army, all of whom have diagnosed his disease as pernicious anemia.

I am appending several laboratory reports on his blood and am sorry that I cannot show all of them, but his lawyer sent a number of the reports to Washington, in connection with a claim for compensation. His Wassermann reaction was repeatedly negative.

Laboratory Reports

March 5, 1923: Red blood cells, 2,460,000; Hemoglobin, 50 percent; color index, 1.04. Differential leukocyte count: Polys., 62 percent; lymphocytes (large and small) 34 percent; transitionals, 0.5 percent; eosinophiles, 3.5 percent.

The red cells show marked anisocytosis and poikilocytosis and there are many macrocytes; no nucleated red cells; platelets much reduced; relative lymphocyte increase.

Impression—from blood alone — pernicious anemia or severe anemia secondary to neoplasm.

June 22, 1923: Red blood cells, 3,500,000; hemoglobin, 78 percent; color index, 1.11; leukocytes, 5,000, with normal differential count.

The red cells are of average size and high color; only moderate anisocytosis and poikilocytosis; platelets reduced; slight leukopenia. Picture shows much improvement.

Oct. 15, 1926: Red blood cells, 3,200,000; hemoglobin, 80 percent; color index, 1.25; leukocytes, 6,200, with polys. 58 percent and lymphocytes 38 percent.

Average color of red cells is high; many macrocytes; practically no microcytes; slight poikilocytosis; platelets reduced; relative lymphocytosis.

Oct. 15, 1927: Red blood cells, 3,900,000; hemoglobin 82 percent; color index, 1.05; leukocytes, 2,900.

The red cells are deeply stained and show anisocytosis and poikilocytosis; both microcytes and macrocytes are prominent; platelets practically absent; an occasional normoblast; leukopenia, with normal differential count.

VIRANO VAN WILLIAMS, M.D.,
Baltimore, Md.

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[This case is very interesting, but we feel, in view of the report of Oct. 15, 1927, that the patient should, by no means, be considered cured, as the blood picture is far from normal and the color index, while lower than on the two previous examinations, is still above one. This may be merely a remission.

We suggest, in view of the fact that such good clinical results followed the use of colloidal gold, that the patient be given a series of intravenous injections of aurol, along with its oral administration, and the case carefully watched and reported later. Because of the well recognized fact that many patients tend to acquire a tolerance for any of the heavy metals, we suggest, further, that the colloidal gold be alternated with neoarsphenamine, mercury (in the form of metaphen, given intravenously) or colloidal mercury-copper sulpharsenite (armervenol).—ED.]

BRAIN TUMOR

Dr. Cunningham's Case

(See CLIN. MED. AND SURG., Sept., 1927, p. 704)

I believe that, in the case reported, we are dealing with some sort of cerebral lesion.

In order to consider every possibility, I think we can rather rapidly rule out uremic and diabetic coma. The former is usually of more gradual onset, and the general odor of the patient is often characteristic. One could scarcely conceive, either, of a uremic convulsion coming on so suddenly and, after a series of these, having the patient able to sit up in the ambulance, walk into hospital, etc. Previous history is important.

Alcoholic coma can be denied because of the lack of alcoholic odor, which, although not mentioned, the doctor undoubtedly thought of; and again, as in uremia, we would not expect the patient to do the things he was able to do, if this condition existed.

Epileptic and syncopal attacks also do not present great difficulties.

Brain abscess can be ruled out on the basis of sudden onset and lack of antecedent disorder.

The doctor thought of syphilis, as shown by his obtaining the specimen of blood for a Wassermann test. All the tests failed to confirm this possibility.

Encephalitis, that bizarre disease, was considered as a foremost possibility by one of the consultants. There is usually sufficient antecedent history so that rarely, if ever, is the onset so sudden as in this case.

The same may be said for polioencephalitis. The pyogenic types of encephalitis have, as a rule, some previous history, such as trauma, middle ear, labyrinthine or sinus infection, and gradually proceed into advancing stupor, or convulsions with increasing coma.

The spinal fluid Wassermann test being negative has ruled out syphilitic encephalitis.

Hemorrhage was a positive diagnosis made in this case; however, I am skeptical of this, because this condition occurs usually in persons past 40 years of age, some signs of arterial disease being present, as well as hypertrophy of the heart. A blood pressure of 150/70, taken, as it was, shortly after the violent exertion the patient went through, is scarcely to be considered as a high figure. Aside from this, about 80 percent of cases of hemorrhage have unconsciousness which, as in the comas, would be of a different character than we have here. Yet it must be admitted that it is extremely plausible, in view of the abrasion over the left eye.

Embolism is almost invariably associated with some acute disease, such as acute septic infections, acute endocarditis, etc., and unconsciousness is less apt to occur.

Thrombosis also occurs in older people, usually, and in those having marked atheromatous changes in the vessels, and shows the maximum symptoms late instead of early, as in this case.

The eye grounds are apt to be congested in hemorrhage cases, but not so for those of embolism and thrombosis.

We have now eliminated all the possibilities except a neoplasm; and in going over the report from the beginning we have a majority of the symptoms as given in favor of this condition.

The slow, irregular breathing, with cyanosis, may be explained on the basis of respiratory disturbance caused by a cerebral tumor. The convulsive seizures (petit mal attacks), beginning with the twitching of the right hand, flexors of the arm and right side of the face and rapidly extending downward over the whole body, come under the heading of motor phenomena. The limited Jacksonian attacks, which continued after the first severe convulsions, indicate the existence of some lesion in the motor cortex. The complete aphasia, as well as the twitching of the muscles of the face, indicate that the lesion probably lies in the frontal lobes (Broca's area), because in this area are the motor centers for the innervation of the muscles of the neck, throat and abdomen. Reversing the process, we are told that the main reflex disturbances are found over the right side of the abdomen and chest. The cyanosis was undoubtedly due to spasm of the throat muscles.

The increase in the pulse rate and blood pressure which we find present in the early stage may be accounted for on the basis of the violent exertion, because when the patient quieted down, after arrival at the hospital, the pulse dropped to 90.

The widely dilated pupils, which later contracted and became irregular (especially the irregularity), also point strongly to a neoplasm, in view of the ruling out of syphilis.

Again, the inability to spell or write indicates an aphasia and the localization of the lesion in Broca's area. This area is located in the posterior two-thirds of the third, left convolution of the frontal lobe. We can also fit in our reflex disturbances found on the right side. In lesions of the frontal lobe, pain or headache may be located in the occiput; therefore, occipital pain indicates once more the location of the lesion in the frontal lobe. The left side pain is a general indication in favor of the location of the lesion on the same side. Thus it may be said the general indications are that the lesion is located, as indicated, in the frontal lobe, on the left side, in Broca's area.

The retention of feces and urine, indicated by the spasmodic condition of the rectal sphincters and inability to urinate, might be due to either hemorrhage or tumor.

Up to this time it has been a toss up between hemorrhage and tumor, but further light is given in the history under June 27, which, to my mind, practically confirms the diagnosis of tumor. Here we see the premonitory signs, in the slight speech disturbance; i.e., the difficulty in pronouncing certain words and in finding a word or being able to repeat a word (word dumbness), again indicating a beginning aphasia and confirming a cortical disturbance such as might be caused by a tumor. The difficulty in the use of the hand also points to a beginning paralysis, which later became a semiparalysis. After recovery from the acute attack his difficulty in speech is apparently no worse than before, but it served to remind him of the difficulty he previously had.

For a considerable time before any major symptoms manifest themselves the indications may be so slight as to be unnoticed by the patient. Then a severe disturbance such as took place here may come on, regress and entirely disappear.

The hemorrhage from the bowels which occurred on the 22nd, I think may be explained on the basis of the parenthetical remarks ("He had a dose of calomel and a dram of mercury by inunction the night before"). The size of the dose of calomel is not given, but having the bleeding come on three days after the beginning of the cerebral trouble I would consider it as due to the calomel and mercury.

To explain the albuminuria in this case seems rather difficult. However, according to Osler, "Reasons drawn from the urine are as brittle as the urinal." He mentions a functional albuminuria which may follow hard muscular work, violent emotions, etc. Though there is dispute on this matter all agree on one point: that the cause must be something unusual and excessive. He also says that albumin may be present in varying amounts in the urine in cases of brain tumor and epileptic attacks. Also in meningeal hemorrhages, as pointed out by Guillain, albumen may be very abundant—5 to 20 Grams per liter.

Thus my diagnosis would be *brain tumor*, because a hemorrhage would rarely, if ever, give symptoms for three months preceding. A hemorrhage may have been superimposed, because of the bruise over the left eye.

HERMAN J. KOOIKER, M.D.,
Albert Lea, Minn.

ANOTHER ANSWER

In reading Dr. Cunningham's report of his very interesting case, my first thought was Jacksonian convulsions. On the second reading I concluded it was what is known as the "equivalent."

Let us see if we can locate the lesion. The aphasia could not be due to a destructive lesion and recover in so short a time (seven days), therefore it must be what is known as the conduction or sensory type.

Let us look at the associate tracts. The direct fibers from the red nucleus to the insula cannot be involved alone, because a lesion here would never cause the face and arm involvement on the same side. The indirect path from the pregeniculum to the cuneus and those from the postgeniculum to the auditory centers (and thus transcortical to the insula) cannot be the route, for the same reason as given above. We must remember that irritations of these centers cause hallucinations but no paresis.

If we have an irritation or compression of the posterior third of the posterior limb of the internal capsule, we get unilateral paresis. The location of the lesion must be in this neighborhood, a little toward the ventricles, causing marked compression of the nine cranial nerves. The pneumogastric is the most important. This nerve supplies the small intestines, not as a whole but in sections, and for this reason a man may bleed to death into his own abdominal organs. If we find a hemorrhage in this location it must come from the lenticulostriate artery, with death to follow. An abscess may rupture, with absorption and more or less complete recovery. I think we find albuminuria in cases of this character.

The prognosis is uncertain.

C. C. PERRY, M.D.,
West Rutland, Vt.

THE IMPORTANCE OF BEING A PARENT

To the child the parent should be companion, friend, and confidant. The parent whose little child brings all his troubles and doubts to him for solution has established a relationship of tremendous value. This can never be brought about if the parent's attitude is cold and repelling. A mother who is too busy to bother with a little child's nonsense will never be bothered by his real problems.

A child should be treated with as much courtesy as an adult. Children have affairs and plans of their own which they are following. These plans are frequently utterly disregarded by the "grown-up." If they must be interfered with, let it be with some explanation and consideration for the children.

The small daughter of a young couple was playing contentedly on the hearth by her father's feet when her mother called from upstairs for her to come to bed. Two or three minutes more and Betty could have completed the task she had in hand and, had mother known this, she would have waited before calling her. With a quivering chin and eyes filled with tears Betty turned to her father saying, "But Daddy, I don't want to go. I want to finish." Father could see the little girl's point, and his answer was, "That's too bad, Betty. Mother didn't know how near through you were, or she would have let you finish; but never mind, 'orders is orders,' so run off to bed." And off she went. In this way he showed that he sympathized with her in her disappointment and that he expected her to meet it bravely, and he also upheld the mother in her request—all in a considerate, understanding way.

It might here be said that one of the fundamental rules of child training should be that parents present a united front to the child. If differences in judgment occur, let them be settled in private.

There is no finer or more important job than being a parent. This generation or the next will not handle it perfectly. There is a great deal to learn, but much will be accomplished if the approach to the problems of childhood is not blocked nor impeded by anger, fear, oversolicitude, or the idea that being a parent means at all times being obeyed. Kindness, common sense, and an effort to understand the child's own attitude toward his difficulties will do much to bring about an intelligent solution for most of the problems.

Boston, Mass. D. A. THOM, M.D.,

OBSERVATIONS ON SKIN DISEASES

(From the European Clinics)

Avoid ointments in eczema of the face. Use only drying lotions and the eruption will clear up.

Never use a strong antiseptic on a dermatitis, as it will increase the irritation.

Tincture of iodine is of no use whatever in human tinea of the scalp.

Human tinea does not form rings as the animal form does.

You can not make a diagnosis with certainty in skin diseases until you know definitely how long the lesions have existed; their distribution—whether they cover the body, or are just on the exposed areas; also the person's occupation, and whether he has been exposed to an irritant. A nevus is present from birth; a tuberculous lesion is of long duration; a varicose eczema also is long; an impetigo short; and a syphilitc lesion fairly long.

First born children are more liable to be afflicted with *eczema.*

A hypertrophic, vegetating, pustular eruption is nearly always due to bromides or iodides.

You cannot be certain of the diagnosis of *tinea tonsurans* until you examine the hairs under the microscope.

In cases of *scrotal eczema,* always look for sugar in the urine.

Black pitting of the nails is characteristic of *psoriasis.*

Do not allow the use of soap and water in acute eczemas. Cleanse the skin with olive oil only.

Bullae on normal-appearing skin, without any surrounding erythema, are characteristic of *pemphigus.*

The papules of *urticaria papulosa* are widely scattered and isolated. Where the papules are close together and in groups, mixed with vesicles, the condition is *dermatitis herpetiformis.*

Varicose ulcer is generally on the lower third of the leg, and on the inner side of the ankle: Specific ulcer is generally on the upper third of the leg, and on the outer side.

An animal tinea ring is always a complete circle; while the ring of seborrheal dermatitis is never complete, but always shows a break in the circle.

Never put ointment on a weeping discharge.

Never put tar on a septic or impetiginous eruption.

To many people, sulphur is very irritating and will cause a dermatitis itself, or precipitate an acute inflammatory condition in a mild case of eczema.

In dry, thickened infiltration of the skin, where there is no sepsis, use tar in the form of the *Liquor Picis Carbonis.*

R. STEWART MACARTHUR,
Los Angeles, Cal.

To The Medical Profession

"It is to the medical profession in its broadest sense, untrammeled by the contentions of different schools, that the world may look for large contributions toward its regeneration, physically, mentally and spiritually, when not force but reason will hold universal sway. As human beings gain in individual perfection, so the world will gain in social perfection, and we may hope to come into an era of right living and right thinking, of good will and of peace, in accordance with the teachings of the Great Physician."—Calvin Coolidge, President of the United States, address to the American Medical Association, 1927.

The Leisure Hour

MICROBES PREFER BRUNETTES

Sir W. Arbuthnot Lane, M.D., tells us that fair-haired people seem better able to resist disease than dark ones.

Unwelcome germ, you've never been
  regarded
As courteous, or gallant, or refined;
Our way to perfect fitness you've retarded
And frequently disturbed our peace of
  mind.

As time goes on we find out more about you,
Your churlish traits loom blatant, grim,
  and stark;
We're out with all our energies to rout you,
Since the complexions you prefer are dark.

Such lack of taste has branded you,
  revealing
A creature to be shunned and left alone,
For, had you any gentlemanly feeling,
Your preference for blondes would now
  be known.

—*The Hormone.*

BACKACHE

Your Back aches because:
"Kidneys," said the herb man.
"Prostate," said the G. U. doctor.
"Flat-foot," said the shoe doctor.
"Pelvic trouble," said the gynecologist.
"Infected teeth," said the dentist.
"Mal-adjustment," said the osteopath.
"Impinged nerves," assured the chiropractor.
"It don't ache," emphasized the Christian Scientist.

COULDN'T FEAZE HIM

While in the South one winter, I met an old colored man who claimed he had known George Washington.

I asked the old fellow if he were in the boat when Washington crossed the Delaware. The old man said:

"Oh, Lor', massa, it was me dat steered dat boat."

"And do you remember when George took the hack at the cherry tree?"

He was lost in thought for a moment; then, with a beaming smile, said:

"Why, suah, massa, I dun drove dat hack mahself!"—*Medical Suggestions.*

TABLOIDS OF CONTENTMENT

If you can't get what you want,
Try and want what you get,
Then you will be contented if not happy.

"Do right and fear no man;
Don't write, and fear no woman".

Cultivate laughter:
It snatches crumbs from doctors' lips;
But learn to laugh and do not worry.

DR. HARRY ADDISON MARCH,
New York City.

"Doctor, how is it you have not sent me my bill?"

"Oh, I never ask a gentleman for money."

"Indeed! What do you do if he doesn't pay?"

"Why, after a certain time I conclude he is not a gentleman, and then I ask him."—*Pharmacal Advance.*

SHE VALUED HER LIFE

The dear old lady entered a drug store and looked doubtfully at the youthful clerk behind the counter.

"I suppose," she began, "that you are a properly qualified druggist?"

"Yes, madam."

"You have passed all the examinations?"

"Certainly."

"Never poisoned anybody by mistake?"

"Not to my knowledge."

"Very well, then," she replied, heaving a sigh of relief, and laying a coin on the counter, "you may give me a nickel's worth of cough drops."—*Patchwork.*

Thumbnail Therapeutics

GLUCOSE AND INSULIN IN VOMITING OF PREGNANCY

The Thalheimer treatment of vomiting of pregnancy consists of the slow, intravenous injection of 300 to 1000 cc. of a 5- or 10-percent solution of glucose, containing 10 units of insulin to each 300 cc. of solution. The insulin enables the body to store the glucose.—Dr. John C. Hirst, 2nd, in *J.M. Soc. of N.J.*

METAPHEN IN PUERPERAL INFECTION

Intravenous injections of 10 cc. of a 1:1000 solution of metaphen, put up in ampules, are sometimes helpful in blood stream infections and the drug seems to be less toxic than mercurochrome.—Dr. John C. Hirst, 2nd, in *J.M. Soc. of N.J.*

SODIUM THIOSULPHATE IN METALLIC POISONING

In 4 cases of acute mercury poisoning, 1 of acute and 1 of chronic arsenic poisoning, the intravenous use of sodium thiosulphate brought about rapid cures and obviated distressing symptoms.—Dr. D. W. Goldstein, in *J. Ark. M. S.*

EPHEDRINE AND SCOPOLAMINE

Ephedrine hydrochloride is an antidote to scopolamine (hyoscine). It does not inhibit the narcotic action of the latter drug, so they may be used in combination to avoid the possibility of poisoning.—Dr. H. Kreitmair, in *München. med. Wchnschr.*

PARATHYROID EXTRACT IN HEMORRHAGE

In a series of 347 patients with hemorrhage due to a variety of conditions, the bleeding was stopped in 304 by the administration of parathyroid extract.

The dose given was 10 to 15 units (the latter dose was given to patients weighing over 110 pounds), administered hypodermically and repeated in 30 to 36 hours if necessary. One dose was generally sufficient. No more than 5 injections should be given. No additional benefit results from larger doses.

The results of this treatment are superior to those following the oral or intravenous administration of calcium, and all gastric irritation is avoided. This is of especial importance in postoperative cases.—Drs. Abraham Cantarow and Burgess Gordon, in *J.A.M.A.* Apr. 23, 1927.

HAND LOTION

The following lotion is excellent for keeping the skin of the hands smooth and flexible during cold weather:

℞

Tr. Benzoin Comp.	5.0
Glycerin	15.00
Alcohol (95%)	40.00
Spts. Ammon. Aromat.	5.00
Aq. q.s. ad	90.00

Sig.—Apply to the hands after washing and rub in thoroughly.

Dr. Geo. B. Lake, of Chicago.

CHRONIC COUGHS AND VACCINES

Many cases of chronic cough, even with night sweats, hemoptysis, etc., are not tuberculous. Ten to 16 percent of cases diagnosed tuberculosis are not so. If no tubercle bacilli can be demonstrated in the sputum it will not cause tuberculous lesions in guinea-pigs. In these non-tuberculous coughs the use of autogenous vaccines is frequently helpful.—Dr. Wm. C. Voorsanger, in *Calif. & West. Med.*, Jan., 1927.

AMIDOPYRINE IN HICCUP

If given in large doses (5 to 8 grains), at frequent intervals, up to a total of 45 grains (3.0 Gm.), amidopyrine will control many cases of obstinate and long-continued hiccup and, if given from time to time, will prevent a recurrence of the attack.—Dr. H. Schottmuller, in *Münch. Med. Wchnschr.*, April 5, 1927.

Current Medical Literature

ACRIFLAVINE THERAPY

In *La Semana Méd.*, Oct. 6, 1927, Drs. F. E. Grimaldi and R. de Surra Canard give the results of a year's constant use of acriflavine in cases of gonococcic urethritis, prostatitis, epididymitis and arthritic diseases. Daily injections of 5 cc. of 2-percent solution were used.

These authors find that in acute gonorrhea the intravenous medication alone gives a reduced percentage of good results, but in acute cases which have been benefited by this medication, improvement is manifested from the very first injection.

Combining intravenous therapy with local instillations of silver salts increases the proportion of good results; especially is this the case with posterior urethritis, and epididymitis is positively benefited.

Acriflavine therapy is justified in the arthralgias and in tendosynovitis. In the chronic types, vaccine and protein therapy supplement acriflavine therapy.

Acriflavine therapy does not obviate the usual complications of gonococcic infection.

CALCIUM AND CANCER

As the result of some years of investigation, Dr. Ellice McDonald, of Philadelphia, in *M. J. and Record.*, June 15, 1927, suggests a biochemical theory of cancer; i.e., that it is due to cell reproduction, favored by a certain optimum increase of the univalent elements, such as sodium and potassium, over the bivalent elements, such as calcium and magnesium, and that this specific alkalinity and ionic association produces such increase of permeability of the cell membrane and increase of conductivity as will favor cell division.

Dr. McDonald shows that from the literature it is apparent that in tissue cultures, as well as in single-celled organisms, sodium and potassium increase the rate of growth and reproduction. Spectroscopically, malignant tissue has a heavier sodium line than normal tissue from the same region.

Dr. McDonald's investigation of 30 cases of untreated or advanced carcinoma showed that every one had a blood plasma reaction more alkaline than normal. In the majority of these the blood serum became more acid than normal after irradiation.

The acid effect of radiation may be intensified by substances which produce an acid pH. These substances are mainly the bivalent substances and negative colloids. Calcium produces a negative colloid and lead (used very successfully in cancer by Bell, of England), also produces a negative colloid. Both lead and calcium act in a parallel way and increase blood acidity. McDonald says that the selection of lead by Bell was fortuitous, because it was said that lead workers did not often have cancer and for other less obvious reasons.

McDonald thinks that the treatment and prevention of cancer might be helped by controlling, directing and aiding radiation by means of negative colloids, and by selecting the proper negative colloids for the nonoperative treatment of cancer. Cancer is a disease of old age, and in later life there is a deviation of the normal acid-base equilibrium to the alkaline side.

In an article in the same issue of *M. J. and Record*, Dr. Willy Meyer, of New York City, also shows that in rapidly growing cancers there is much potassium and but little calcium. This unbalance is not the consequence of tumor growth but precedes it.

EPINEPHRIN IN PROGRESSIVE MYOPIA

Dr. Meyer Wiener, of St. Louis, in *J.A.M.A.*, August 20, 1927, states that he believes progressive myopia is benefited by suprarenal secretion. It is possible that the myopia may be due to constant stooping of the body, interfering with the secretion of the suprarenals.

In about 50 cases of progressive myopia, local instillations of epinephrin hydrochloride, 1:1,000, were given three times daily. Satisfactory results have been tabulated in 30 followed cases and in some the results were startlingly good. In no case was close work forbidden or lessened, but daily exercise was insisted upon. In only 2 cases was there any increase in refraction after the administration of epinephrin. In all cases the myopia was checked if not actually improved.

The value of exercise as a stimulator of suprarenal secretion is stressed.

THE LIVER AS AN ENDOCRINE GLAND

Dr. J. S. Lankford, of San Antonio, Texas, in *Am. Med.*, October, 1927, regards the recent developments in the treatment of pernicious anemia by liver feeding as indicating that the liver is the master endocrine gland, owing to its special effects on the blood and on blood formation. The effects of its secretion are to be compared with those of thyroxin, insulin and epinephrin.

It has been thought that high protein diet, especially liver, was responsible for the gratifying results in pernicious anemia;

but now a non-protein fragment of beef liver has been worked out which produces the same results.

Some investigators of the liver diet who had attributed its good results to vitamines have been led, by more recent findings, to the belief that there must be something else of special importance in liver feeding.

Lankford considers it strange that, in the various papers and discussions on liver feeding, no reference has been made to the possibility of the liver as an endocrine gland. It seems reasonable that the non-protein fraction of liver might contain a vital endocrine secretion that activates all the functions of the liver, just as insulin stimulates the function of the tail of the pancreas. The thought seems worth physiologic investigation.

SODIUM BARBITAL AT THE MENOPAUSE

In *Practitioner*, Oct., 1927, Dr. J. H. Hannan states that he has used sodium veronal (barbital) as a routine sedative at the menopause for 2 years and is entirely satisfied as to its efficiency.

The dose varied between 1 and 2 grains (0.065 to 0.13 Gm.) three times daily, taken half an hour after meals. This mixture is sweetend.

Of 47 patients so treated, 36 have been satisfactorily relieved, 4 have been considerably relieved, 7 were only slightly improved. In no case was there failure to obtain some relief for the psychologic disturbances at the menopause. Occasionally, to overcome tolerance, a course of bromides was substituted for one week in five of the veronal treatment.

No mental depressive effect was observed, even after many months of continuous veronal therapy. Slight skin eruptions, which did not last more than two days, were noticed in only 3 patients.

As a nervous system sedative, sodium veronal (barbital), in doses which do not cause toxic symptoms, is superior to the salts of bromine at the time of the menopause.

VACCINATION AGAINST VARICELLA

It has been reported that vaccination of persons exposed to varicella, with fluid from the vesicles of the patient suffering from the disease, is successful, whether the vaccination was successful or unsuccessful.

Drs. W. W. Waddell, and R. C. Eley, of the University of Virginia, report in *Am. J. Dis. Child.*, Oct., 1927, that 23 persons exposed to a hospital ward case of varicella were vaccinated with the vesicular fluid of the patient. Only about one-third of the vaccinated persons gave a successful reaction, and several of these, as well as the others, developed varicella.

The authors therefore are doubtful if this method can be successfully employed as a means of preventing the disease in hospitals, etc. But the disease seemed in many cases to be rendered more mild by vaccination and in some cases immunity appeared to be conferred.

ADMINISTRATION AND ABSORPTION OF STROPHANTIN

Strophanthin is administered almost exclusively either intramuscularly or intravenously. Yet, because this method of administration is unsuitable for frequent repetition, it has been thought desirable to investigate further the effects of sublingual and perlingual administration in cases of cardiac failure.

In *J. A. M. A.*, August 20, 1927, Drs. Cary Eggleston and Thos. J. White, of New York, as the result of trials on 15 patients, found no evidence that strophantin was absorbed satisfactorily following sublingual or perlingual administration. Absorption did not occur to any satisfactory or even demonstrable extent. All these patients were promptly responsive to oral administration of digitalis.

TREATMENT OF ARTHRITIS

In *Am. J. M. Sc.*, Nov., 1927, Dr. Jas E. Cottrell, of Philadelphia, gives his results of the treatment of arthritis with salts of **o-iodoxy-benzoic acid.** The method of preparation and physiologic action of this acid were reported first in 1911 by Loevenhart and Grove. It is an oxidizing agent and is non-hemolytic when used intravenously; it also causes a fall in blood pressure. Certain salts are germicidal.

The use of o-iodoxy-benzoic acid in the treatment of arthritis was initiated by Young and Youmans, of the University of Michigan, who in 1926 reported on 43 cases, all but 4 of which were chronic; 56 percent of these were said to be markedly improved and 23 percent moderately improved. Other similar reports have appeared. The value of the acid in arthritis is based upon its germicidal power for streptococci and staphylococci and upon its power of stimulating bodily defense mechanisms in general.

Dr. Cottrell reports on 21 cases in which the drug was tried in the University and Episcopal Hospitals of Philadelphia. The majority of these were long-standing and severe cases, the patients varying in age from 23 to 70 years. All cases were considered as of infectious type.

The ammonium salt of the acid was used by intravenous injection. The standard dosage of ammonium o-iodoxy-benzoate (marketed as "Amiodoxyl Benzoate") is 1 Gm., dissolved in 100 cc. of sterile, distilled water, given about twice weekly and injected *very slowly*. The drug may also be administered orally, the dosage being 1.5 Gm., given in capsules of 0.5 Gm. each during a few hours, the patient preferably fasting. The dose is repeated approximately twice a week.

The drug is best given in "courses" of 6 or 8 doses at semi-weekly intervals, with a rest of three to six weeks between courses.

Of the 21 patients treated by Cottrell, 2 were cured, 6 markedly improved, 4 moderately improved and 6 slightly improved.

Cottrell thinks that the drug will have a definite place in our therapeutic armamentarium against arthritis. There should be concomitant and persistent use of physical therapy.

WHOOPING-COUGH VACCINES

It has been generally claimed that freshly prepared whooping-cough vaccines are more antigenic than stored vaccines.

To test the truth of this, investigations have been carried out for several years past, in the Dept. of Health, New York City, by Lucy Mishulow, Carolyn Oldenbusch and Marie Scholl, the results of which are published in *J. Infec. Dis.*, August, 1927.

Several different lots of vaccine were tested when freshly prepared and after storing and it was found that there was no measurable deterioration in their power of stimulating complement-fixing antibodies in rabbits.

If the antigenic value of whooping-cough vaccines can be measured by their power to stimulate specific antibodies, and if the response in human beings to immunization with the vaccines is similar to that in rabbits, properly stored vaccines remain antigenically potent for a considerable length of time.

The claim that stored vaccines lose about 75 percent of their antigenic potency after storage for 2 to 3 months has not been substantiated. Eight different preparations were highly potent at the end of four and a half years.

EPHEDRINE IN HAY FEVER

Drs. F. W. Gaarde and Chas. K. Maytum, in *Am. J. M. Sc.*, Nov., 1927, report their further observations of ephedrine in hay-fever.

In 1925, the authors used ephedrine in 26 cases of autumnal hay-fever. During 1926, the drug was used in 36 cases, administered either internally or as a nasal spray. The results obtained showed that ephedrine, given by mouth in 25 to 60 mg. doses, afforded temporary relief to slightly more than 50 percent of patients with autumnal hay-fever. An additional 25 percent obtained sufficient relief to consider its use warranted.

Ephedrine, given in a 3-percent solution as a nasal spray, is less efficacious and the relief is of shorter duration. However, the majority of patients who used ephedrine in this form alone felt that its use added to their comfort. The best results were obtained when the spray was used early in the paroxysm.

The effect of both the local and internal administration seemed to depend on the severity of the paroxysms and the good results were obtained in the milder seizures. Eleven patients who obtained only partial relief from preseasonal treatment were able to control their symptoms with the occasional use of ephedrine.

The neurotic temperament and nervous state of the patient are important factors in the production of tremor, rapid heart action and other distressing symptoms produced by the drug.

While the value of ephedrine is limited and its effects temporary, the authors' observations of 55 patients, during two years, warrant the conclusion that the drug should be given a definite place in the symptomatic treatment of autumnal hay-fever.

THE ACTION OF DRUGS

Some radically new ideas regarding the nature of drug action are expressed by Dr. J. E. R. McDonagh, of London, Eng., in *M. J. and Record* Oct. 19, 1927.

Dr. McDonagh's studies have led him to believe: That no drug has a specific action, because its action is influenced by the chemicophysical state in which the protein particles of the organism happen to be at the time it is administered; that no drug acts directly upon the microorganisms causing an infection nor upon a certain organ or structure; that, valuable as the atomic structure of a chemical substance has been in the past, it fails to explain the action exhibited when the medicament enters the body, and that the action of a drug is not due to its undergoing a chemical change when it reaches the blood stream.

Dr. McDonagh cites a number of arguments in support of these propositions and as a deduction concludes that there can be only one disease, which is an exhibition of the three chemicophysical changes which the protein particles, constituting the host's protective substance, undergo at the hands of the invader. The prevention of disease lies in keeping the protein particles normal, and the cure of disease lies in restoring to the normal the altered chemicophysical changes the protein particles have been obliged by the invader to undergo.

ULTRAVIOLET RADIATION PLUS CALCIUM

Discussing ultraviolet radiation and the calcium factor in normal and pathologic states, Dr. Edwin N. Kime, of Indianapolis, in *Arch. Physical Therap., X-Ray, Radium*, Oct., 1927, says that ultraviolet radiation and calcium are synergists and act with the catabolic endocrines. They are opposed by the parasympathetic mechanism, in the normal state of reciprocal vegetative interactivity.

Ultraviolet radiation and calcium are indicated in all cases of low general metabolism, calcium deficiency disease and allergic phenomena.

Allergic phenomena are chiefly due to the edema which is the result of increased endo-

thelial permeability, caused by parenteral proteins, and are specifically checked by ultraviolet radiation, calcium injections or catabolic endocrines and drugs.

Ultraviolet radiation, calcium and the catabolic synergists are *contraindicated* in advanced pulmonary tuberculosis, toxemias, fever, diabetes and toxic goiters.

SODIUM THIOSULPHATE IN ARSPHENAMINE NEPHROSIS

In *Illinois M. J.*, October, 1927, Dr. E. J. Stieglitz, of Chicago, reports the case of a young woman who, following several injections of arsphenamine for supposed syphilis, developed renal symptoms which were considered as due to a hemorrhagic nephritis resulting from a focal infection.

When the patient came to the author, arsenical intoxication was suspected. The patient was treated by 15 gr. (1.00 Gm.) of sodium thiosulphate, three times a day, by mouth. The urine was normal after one month; the blood picture was practically normal and the patient felt quite well.

The value of sodium thiosulphate as a detoxicant in heavy metal poisoning has been confirmed by a number of writers. The intravenous use of the thiosulphate is strongly advocated for acute, severe arsphenamine intoxication. Probably a more rapid action might have resulted if the drug had been given intravenously in the case reported.

NUMOQUIN-BASE (ETHYLHYDROCUPREINE) TREATMENT OF LOBAR PNEUMONIA

In 1911, Morgenroth and Levy published an account of their study of the pneumococcocidal influence of ethylhydrocupreine (numoquin-base), a product closely related to quinine, and its possible value in the chemotherapy of pneumonia.

The earlier therapeutic applications of this drug were made with the hydrochloride, but the results indicated that the therapeutic and toxic doses were too close together to render the remedy of clinical value, despite its high bactericidal power, unless some other method of administration was found. This was accomplished in 1916. when Mendel decided to use the insoluble ethylhydrocupreine base orally, administered with milk. This treatment was found successful and Mendel's work was verified by other investigators.

In *M. J. and Record*, Sept. 7 and Sept. 21, 1927, Dr. Frank B. Cross, of Brooklyn, gives the results observed in 126 cases of lobar pneumonia in the Methodist Episcopal Hospital, New York, treated by this new remedy.

A dosage of 4 grains (0.25 Gm.) every 5 hours, for fifteen doses, was established as a routine. Five or six ounces of milk are given with each dose. More milk may be given freely between doses, but beyond small amounts of water nothing else by mouth is permitted during the time of administration of the numoquin-base.

The earlier the drug is given the greater are the prospects of success. The prompt use of numoquin in suspected pneumonia should be a routine procedure.

In the author's series there was complete absence of ocular symptoms; only 1 case each of headache and profuse diaphoresis; 4 cases of nausea and vomiting; and 6 of tinnitus aurium, following the use of numoquin.

It seems advisable to begin numoquin-base treatment only during the first three days of lobar pneumonia.

A tabulation of reports submitted by over 600 physicians throughout the United States shows that, of 3,008 cases reported as pneumonia and given numoquin, only 153 (5.08 percent died). These results are encouraging.

But it is to the clinical and bedside impressions that the author owes his estimate of the value of numoquin. These group themselves with regard to the lowering of temperature, the greater euphoria of the patient and the decreased tendency of the lesion to extend.

There is particular value in the prophylactic value of numoquin in respiratory influenza, in chest traumatisms, and in pulmonary congestion.

THE PRACTITIONER AND PREVENTIVE MEDICINE

Dr. W. F. Draper, Assistant Surgeon General, U. S. Public Health Service, in a paper in *J.A.M.A.*, Aug. 13, 1927, suggests that private medical practice should be more concerned than it is with preventive medicine and that in future the public demand will be for this service.

There are vast opportunities, in visiting the home and in dealing with individuals, to advise in connection with personal and familial hygiene, apart from the treatment of actual disease. Often defects and disease go unrecognized until it is too late to accomplish anything more than palliation. This condition may be regarded as a failure of the physician who has neglected abundant opportunities for service.

The old-fashioned family physician knew far more about his families and their members than is the case nowadays.

NEW REMEDY FOR DIABETES MELLITUS

Professor Carl von Noorden (in *Klin. Wchnschr.*, May 28, 1927, and *Deut. Aerzte. Zeit.*, June 12, 1927) writes concerning "Glukhorment," a newly marketed preparation of dessicated pancreas substance used by him clinically in treating diabetes.

Glukhorment contains no insulin, but it has the great advantage over insulin that it may be administered orally. Its exact

physiologic and chemical actions are not yet precisely known, but the therapeutic tests show that it may be administered internally without apparent harm.

In mild cases of diabetes not calling for insulin, glukhorment, taken thrice daily, checks sugar elimination on the usual diabetic regulation dietary; and the dietary restrictions can gradually be removed.

In cases which definitely require insulin, its amount can gradually be diminished and replaced by glukhorment, which, however, can never altogether take the place of insulin.

Nearly 100 diabetics have been treated by von Noorden with glukhorment. The effects on sugar elimination were most marked in the mild cases not calling for insulin. With diets, which, before treatment with glukhorment, had always caused glycosuria, its administration greatly diminished or suppressed the glycosuria. Those patients who definitely needed insulin could manage with less of it when supplemented with glukhorment; and the unpleasantness associated with frequent insulin injections was so much the less.

EPHEDRINE IN URTICARIA

Dr. Beatrice M. Kesten of New York, in *Arch. Dermat. and Syphil.*, August, 1927, reports the use of ephedrine in urticaria.

The use of ephedrine was suggested because it was observed that the wheals of urticaria often disappeared temporarily after its injection.

Six patients with chronic urticaria were treated with ephedrine administered orally, 2 being completely relieved and 2 improved. Eleven patients with chronic urticaria and angioneurotic edema were similarly treated; 7 were cured, 2 improved and 2 were unimproved.

The patients received an initial dose of 50 mg. This dose was repeated at intervals of from two to six hours, and continued until the symptoms were relieved or until further administration seemed futile. In some cases the initial dose was increased to as much as 120 mg. every two hours. No harmful effects from the use of ephedrine were observed.

The effect of ephedrine, especially in cases of urticaria with angioneurotic edema, seems indisputable.

ARSPHENAMINE REACTIONS

The treatment of syphilis by arsphenamine and its derivatives is occasionally accompanied by more or less serious reactions. Drs. G. W. Raiziss and A. Koppelman in *J. Chemotherapy*, April, 1927, say that many of these reactions are due either to impurities in the drug used or to faulty technic in administration.

Reactions may, however, be ascribed to arsphenamine, which really are due to the syphilis itself or to some coincident disease, as arsphenamine can stir up latent morbid processes.

The arsphenamines are tolerated by thousands without reactions. When a drug is ordinarily well tolerated, commonly, the primary cause of occasional reactions does not lie in the drug itself but in the patient; there is an idiosyncrasy towards the drug. Some patients always show the socalled nitritoid crisis, some always vomit, others always show cutaneous reactions.

Regarding the nitritoid crisis, the authors cite Milian's view that it is due to poisoning of the sympathetic nervous system. Arsphenamine, which, in toxic doses, poisons the sympathetic system, exerts a similar harmful effect upon patients in whom the sympathetic nervous system has been altered by syphilis or other disease.

COLLOIDAL LEAD TREATMENT

Dr. Duncan C. L. Fitzwilliams, of London, England, in *Brit. M. J.*, April 23, 1927, gives his experience of colloidal lead therapy in about 60 cases of malignant disease, treated in hospital as well as in private practice during two years past.

The preparation used contained 0.2 percent of lead, in the form of lead iodide, intended for intravenous injection; it contained very small amounts of glucose, thyroid extract and cresol. Four doses were given at four- to five-day intervals.

The experience of the author and of others has been that the injection of other colloidal lead preparations was followed by considerable reaction; the author's experience with the above preparation was that only very few patients showed any reaction whatever; those that did were among those treated at the beginning and the authors believe some contamination of the lead preparation caused the reaction.

The results of lead therapy are best seen in inoperable cases. There is every hope that, though a cure may not be brought about, the rapidity of the growth may be checked, and at the same time it gives the patient the feeling that something is being done. In early cases the hope is justified that the growth may be retarded or even disappear.

This method of treatment is most unsuitable when the walls of a hollow viscus have been invaded by the growth, because destruction of the growth means destruction of the wall and death must ensue.

CHLORAZENE IN GYNECOLOGIC AND SURGICAL PRACTICE

An article by Dr. Franz Ertel in *Wien. Med. Wchnschr.*, 15 Jan., 1927, states that, in the State Women's Hospital in Linz a.d. Donau, for the past half vear, chloramine (chlorazene) has been used in preoperative aseptic work. For hand disinfection the concentration of chloramine used is a 5-percent solution; but only 0.1 to 0.25 percent is used for irrigating.

The curative and restorative results in the treatment of wounds were extraor-

dinary good. These chloramine preparations did not have the cell-destructive and tissue-damaging effects observed with other disinfectants, such as the mercurials, which has been proved by several hundred trials. While the disinfecting power is quite satisfactory, there is no injury to the operator. The slight odor is not disturbing.

The chloramine solution was associated with a little methylene blue. In gynecologic practice, chloramine, combined with an agreeable odorant, was used with excellent effect as a vaginal application in portio inflammations, inflammatory catarrhs of the vaginal mucosa, slight cervical catarrhs and vulvitis. Even purulent types of vaginitis, with the formation of strong inflammation, in many cases progress in a few weeks to a cure, while most are improved.

In colpitis granulosa gravidarum, the secretions were reduced after 2 or 3 applications and the process stopped. In all refractory cases there was a constitutional anomaly. In this perfumed chloramine (chlorazene) the rather strong odor of ordinary surgical chloramine is absent. For irrigation ¼ to ½ percent or even a 1:1000 solution was used.

It is one of the unquestionable advantages of the chloramine products that they act by the splitting of chlorine and oxygen in the nascent state, having no resorption intoxication and with a high bactericidal power.

IMPORTANCE OF DETAILS IN SURGERY

By "Life Savers" (the title of his article) Dr. H. Hoyt Cox, of Chicago, In *Illinois M. J.*, July, 1927, means the apparently insignificant pre- and postoperative details, the strict observance of which makes for reduction of operative mortality.

Among the many points to which Dr. Cox refers are: preoperative attention to the patient's physical and emotional fitness for operation; keeping the patient *warm* during and immediately after operation; control of operative hemorrhage; skill in anesthesia; watching the patient coming out of anesthesia; immediate attention to symptoms of stitch abscess, vomiting, bowel movements, etc.

The surgeon should *personally* supervise *every detail*, before and after operation, and not leave them to interns or nurses.

LIVER EXTRACT IN TOXEMIAS OF PREGNANCY

Drs. H. A. Miller and D. B. Martinez, of Pittsburgh, report in *Am. J. Obst. & Gynec.*, Aug., 1927, on a series of 50 cases of pregnancy toxemia, including 7 cases of eclampsia, treated by liver extract. Eleven of these were cases of preconceptional nephritis.

The dosage varied. In active eclampsia, the extract was given intravenously, in doses of 10 to 20 cc., every 15 to 30 minutes. As much as 185 cc. have been given in the first eighteen-hour period. No ill effects from the liver extract were noted.

Cases of known or suspected preconceptional nephritis were only symptomatically improved following the use of liver extract. Three such cases did not respond to the treatment.

Convulsions did not occur in any treated preeclamptic cases.

Improvement always occurred, except in some of the preconceptional nephritis cases.

Diet or activities were not restricted except in patients showing a blood pressure over 180 mm.

Symptoms began to abate within a few hours after treatment began. Pregnancy continued, without toxic symptoms, until delivery.

AUTOPSIES IN GENERAL PRACTICE

The autopsy, as one of the principal means of advancing medical knowledge, is rather neglected in general practice, according to Dr. Fred C. Smith, of Marion, O., in *J.A.M.A.*, August 20, 1927.

Dr. Smith believes that the physician who is deeply interested in his work can obtain permission for an autopsy in at least 20 percent of his cases ending in death. In the very large clinics, permission is obtained in about 80 percent of death cases. Within a few years, Dr. Smith, in his own town, has worked up his percentage of permissions to over 80.

The idea that people are generally averse to the practice of autopsy should be dissipated. The real reason why this excellent method of studying pathology and verifying symptoms and diagnosis is not more used must be that practitioners are not sufficiently interested in it.

NON-SPECIFIC THERAPY

I.—*In Locomotor Ataxia* (Tabes):

Dr. L. Isacson, of Sioux City, in *Urol. and Cutan. Rev.*, June, 1927, says that the literature shows only one favorable report on the non-specific treatment of locomotor ataxia. In this report, 54 out of 76 cases of tabes were improved by using tuberculin injections, alternating with mercury salicylate.

Dr. Isacson reports that, in a case of incipient tabes, he obtained good results from a stock vaccine of staphylococci in massive doses. Three injections at 4-day intervals were given, followed by mild mercurial inunctions for six months. The resistance of the patient was sufficiently built up then so that the stronger specific drugs could advantageously be employed.

II.—*In Syphilis*:

Dr. Josef Schumacher, of Berlin, in *Am. J. Syphilis*, July, 1926, shows that parenteral, non-specific injections, such as albumin, lipoid, or lipoid and albumin simultaneously or separately, bring about the production of lipolytic or proteolytic fer-

ments only, neither of which has any action on the spirochetes. To produce a lipoproteolytic ferment requires the injection of a combination of lipoid and albumin, and Schumacher has demonstrated that such an injection is spirillicidal. The socalled non-specific therapy is only non-specific bacteriologically: It is very specific therapy biochemically.

Schumacher also shows that by the simultaneous administration of arsphenamine and lipoid-albumin, the therapeutic index of the former was much increased.

Sterilized skimmed milk is a very convenient lipoid-albumin. Some of the commercial ampules contain only lactalbumin which incites the production of proteolytic ferments only and is useless in treating syphilis. [Note. Lactigen is a whole milk sterilized product; it therefore, is a lipoid-albumin.—Ed.]

III.—*General*:

In administering proteins, we have to deal with a reaction of the whole body. This response is particularly valuable where, as in infectious diseases, increase of the detoxicating action of the liver, etc., is required.

In giving proteins, we merely stimulate the same activities which are naturally stimulated after bacteria have invaded the body, as in pneumonia and other infections. Not only bacteria and bacterial toxins are overcome, but also spasms.

Dr. Ernest F. Mueller of Hamburg (*Wisconsin M. J.*, June, 1927) states that, in a series of cases of gastric ulcer, the spasmodic contractions of the stomach, and therefore the typical pain of ulcer, were controlled by non-specific protein (milk), intramuscular injections. This particular protein reaction in gastric ulcer is not only of value to the practitioner, so that he may know how protein therapy acts, but the knowledge of protein action upon the vegetative nervous system and its typical response may be a valuable basis for applied medical science generally.

THE EYE IN GENERAL PRACTICE

Do not try too long to remove a foreign body embedded deeply in cornea: you may push it into anterior chamber. Swab the conjunctival sac with an antiseptic solution and refer the case to an ophthalmic surgeon.

An injury, especially a burn, which produces a raw surface in the eye may lead to symblepharon. Treat the place, morning and evening, with vaseline and iodoform ointment to prevent the surface from uniting.

You cannot be too careful in thoroughly cleansing the conjunctival sac when there is a denuded or abraded surface. An infective ulcer may ultimately result in blindness.

The emergency treatment of a perforating injury of the eye is to douche the conjuctival sac thoroughly with perchloride of mercury 1:6,000, put in a drop of atropine, vaseline and iodoform ointment, bandage and refer to an ophthalmic surgeon.

A blow on the eye, even though slight, may cause ultimate serious damage. Traumatic mydriasis, traumatic cataract, or one of many other conditions may result. Keep the eye at rest with atropine and watch. Be guarded in prognosis until you are sure. —Dr. Ernest Clarke, of London, Eng., in *Practitioner*, July, 1927.

THE TREATMENT OF LEUKORRHEA WITH CHLORAMINE

In *Wien. med. Wchnschr.*, July 30, 1927, Dr. Hans Heidler remarks that leukorrhea is only a symptom and there are basic constitutional and endocrine factors connected with it.

Lavage treatment is not in itself an essential method of dealing with the condition.

The author is an opponent of vaginal lavage in the case of healthy women, and considers it not quite harmless as one of the means of daily hygiene; but in leukorrhea cases we cannot quite renounce this practice.

Among the numerous medicaments used for vaginal lavage, chloramine (chlorazene) has been proved to be a very welcome addition to the physician's armamentarium. The patient herself can do the lavage, since this substance is quite harmless (Lorenz, in an experiment on himself, took 3 chloramine tablets by mouth without any untoward symptoms).

We have frequently found that patients who have been treated in the clinic for weeks and months by old and new methods have been finally relieved from the troublesome discharges by lavages with chloramine.

REST FOR THE DISEASED EAR

In *Eye, Ear, Nose and Throat Monthly*, August, 1927, Dr. Geo. B. McAuliffe, of New York, recommends functional rest for the ear in inflammations of that organ. The treatment of ear inflammations should parallel that of inflammations of the eye, in this respect.

If sound-proof rooms cannot easily be provided in hospitals, every attempt should be made to minimize noises in the treatment of aural inflammations.

PHYSICAL THERAPY IN INTESTINAL DISEASE

Dr. J. Riviere, of Paris, France, in *Internat. J. Med. & Surg.*, Apr., 1927, thinks that most cases of enteritis have a nervous or neuromuscular origin and that galvanic currents and ultraviolet rays, as well as diathermy and thermotherapy, are indicated.

Enteroptosis is mostly cured by electro-thermo-penetration, galvano-faradic currents, high-frequency sparks, moderated radiotherapy, thermo-luminous baths, vibrotherapy and the ultraviolet rays.

Cancer of the intestines must benefit from the combined action of x-rays and different applications of high-frequency currents before, after and during operation. Riviere has been a constant advocate of this course since 1900.

REDUCING MORTALITY OF ACUTE APPENDICITIS

Drs. John O. Bower and J. H. Clark, of Philadelphia, in *J.A.M.A.*, Sept. 10, 1927, state that investigations in the Samaritan Hospital of that city show the maximum mortality in cases of acute appendicitis was 9.6 percent when the average time between the onset of symptoms and operation was 85.2 hours; the mortality was 1.53 percent when the average time was 49.5 hours.

During 1926, 92.3 percent of all patients who died in the hospital from a spreading peritonitis, caused by a perforated appendix, had had laxatives before admission; 77.4 percent of those entering with a diagnosis of appendicitis and local peritonitis and 24.3 percent diagnosed as simple appendicitis also had received laxatives. This shows that the public is not aware of the dangers of using laxatives in the presence of abdominal pain.

The authors believe that most of the delay in bringing appendicitis cases to operation is due to procrastination by the family physician.

THERAPEUTIC EXERCISE

In *Arch. Phys. Therap.*, Sept., 1927, Dr. J. C. Elsom, of Madison, Wis., gives reasons for the physician's supervision of exercise as a therapeutic agent. The exact type of exercise and its quantity should be prescribed just like a medicament, the dosage and kind of exercise being dependent upon the patient's age, disease state and other factors.

In the discussion the point was brought out that commercial, socalled physical therapy is sometimes harmful rather than beneficial.

OCULAR DEVIATIONS

Dr. J. A. Smith, of Vancouver, B. C., in *Eye, Ear, Nose & Throat Monthly*, Sept., 1927, says that an advancement of any of the ocular muscles does not cause diplopia and is consequently much safer than a tenotomy.

Where vision is good in both eyes, a tenotomy should not be done except in the form of a recession.

In a case of paresis or underaction, the weak muscle should always be advanced.

When there is a vertical as well as a lateral deviation, the correction of the former often alleviates the lateral deviation to a great extent.

In the correction of a convergent squint of high degree, a recession should not be performed at the same time as the double advancement, but at some later date when the required amount can be properly estimated.

PARENTERAL ALCOHOL THERAPY

In *Urol. & Cutan. Rev.*, June, 1927, Professor Bodo Spiethoff, of the University of Jena, Germany, gives particulars of his latest technic for parenteral injections of alcohol, intramuscularly, in the gluteal region.

The chief domain for parenteral alcohol therapy is in acute or subacute inflammatory processes more or less deep in the tissues. In addition to these, it may have very good results in lupus erythematosus —results at least equal to those obtained with gold.

It is considered best to avoid reaction; the dosage has therefore been reduced from 0.3 cc. to 0.1 cc. of absolute alcohol.

One irritation is allowed to subside fully before another injection is made.

Dosage is not increased beyond 0.1 cc. unless this, when repeated, fails to bring about the desired result; and not beyond 0.3 cc. in any case.

For adults the dose of alcohol is diluted, in the syringe, up to 1 cc. with sterile water. For children the alcohol dosage is from 0.02 to 0.03 cc. with corresponding dilution.

The action of the injection is shown by a very quick cessation of pain and a prompt tissue softening which accelerates the curative process or absorption.

With the dosage used there are no local reactions nor marked symptoms of general reaction.

DIGITALIS THERAPY

The indication for rapid, full digitalization is cardiac failure. The indication for small doses of digitalis is threatened cardiac failure or low cardiac reserve.

Two minims of the tincture or 1/5 grain (.013 Gm.) of powdered digitalis per pound of body weight is the average amount required for full digitalization. This amount is given in divided doses and full digitalization may be obtained in from 6 to 24 hours by oral administration.

Smaller doses, the amount depending on study of the particular patient, are given when, owing to a lack of cardiac reserve force, there is threatened failure of compensation. — DR. WALTER A. BASTEDO, in *Ann. Clin. Med.*, May, 1927.

New Books

McDOWALL: CLINICAL PHYSIOLOGY

CLINICAL PHYSIOLOGY. (*A Symptom Analysis*) *In Relation to Modern Diagnosis and Treatment. A Text for Practitioners and Senior Students of Medicine. By Robert John Stewart McDowall, D.Sc., M.B., F.R.C.P. (Edin.), Professor of Physiology, King's College, University of London. With an Introduction by W. D. Halliburton, LL.D., F.R.C.P., F.R.S., Emeritus Professor of Physiology, King's College, University of London. New York: D. Appleton and Company.* 1927. *Price* $7.00.

Medical students, although they "read" physiology in their pregraduate days, often fail to fit in the facts described with those observed in clinical practice; or, which is perhaps more probable, the practitoner has a rather indistinct or incomplete knowledge of the physiologic basis of clinical symptoms in disease complexes.

It is the purpose of Dr. McDowell's book to present some of the facts of physiology and their application in general medicine in a form which fits in conveniently with pathologic and clinical teaching. The method of presenting these facts is a complete departure from the usual arrangement in a textbook of physiology; the physiologic phenomena are described in a way that orients them toward clinical phenomena with which the practitioner is constantly faced.

The book abounds in matters for thought. The practitioner who studies this book will find himself unconsciously more than a mere dispenser of remedies and an observer of symptoms; he will become an investigator of the real forces underlying clinical complexes and it may be his lot, as Dr. McDowall shows that it has been of others, to contribute something of value to physiology or pathology. These sciences owe much to intelligent clinical observers.

But the practitioner will also discover much of value that perhaps he was not aware of. Little facts, such as that it is not sufficient merely to prescribe iodine but to see that its absorption must not be inhibited by intestinal bacteria, should be interesting and profitable.

Dr. McDowall's book is a fascinating as well as a valuable one and is well worthy of a place on every practitioner's bookshelves. The typography is excellent.

KIBBEY: PRINCIPLES OF SANITATION

THE PRINCIPLES OF SANITATION. A Practical Handbook for Public Health Workers. *By C. H. Kibbey, Director of Sanitation, Tennessee Coal, Iron and Railroad Company, Birmingham, Ala.; etc. With* 34 *Illustrations, Including* 5 *Color Plates. Philadelphia: F. A. Davis Company.* 1927. *Price* $3.50.

As Director of a Sanitary Division, the author found it difficult to obtain literature suitable for the instruction of sanitary inspectors regarding matters with which they should be familiar. As a result, lectures and demonstrations were given and the causes of disease discussed in a strictly non-technical way, all inspectors being required to attend as a part of their duties. These lectures, enlarged and rearranged, form the present book.

The book may be said to be a compendium or textbook of the practice of public sanitation, written in such a way that it can be easily mastered by anyone with average intelligence. Primarily the author intended it for the instruction of public health inspectors, but it should be useful for the rank and file of public health organizations and to physicians in smaller towns. The illustrations are clear, pertinent and well chosen.

CROHN: AFFECTIONS OF THE STOMACH

AFFECTIONS OF THE STOMACH. *By Burrill B. Crohn, M.D., Associate Attending Physician to the Mt. Sinai Hospital, New York City, Member of the American Gastro-enterological Association, etc. With* 361 *Illustrations, Some in Color. Philadelphia and London: W. B. Saunders Company.* 1927. *Price* $10.00.

A new textbook on diseases of the stomach and associated conditions, in which the author treats the subject from the viewpoint of the laboratory workers in pathologic physiology as well as from that of the clinician.

The last few years have witnessed very numerous contributions, from chemical, pathologic and neurologic laboratories, on the subject of gastric disorders. All the new data on gastric secretion and secretory disturbances; the rather radical development of scepticism regarding the importance of secretory gastric changes in respect to functional conditions; the rapid strides of roentgenology and of cholecystography; the broadening interest in the physiology of the gall-bladder and biliary duct diseases; the changing views regarding gastric surgery—all these have caused momentous changes in the aspects of gastro-enterology and all are fully discussed in the present textbook.

The book is interesting because it presents gastric pathology from quite a different standpoint than that of the older, almost purely clinical aspects; it represents the aspects of disease judged principally from the laboratory findings. That

the author has brought a vast amount of personal experience, both in the laboratory and in the clinical wards, to bear upon the subjects treated is evident on looking through the volume.

As might be expected, a large portion of the work is devoted to gastric ulcer. After reviewing the various etiologic theories the author apparently thinks that we have not yet arrived at a satisfactory cause for ulcer in the gastroduodenal region. In regard to the relation between gastric ulcer and its presumed cancerous degeneration, as originally propounded from the Mayo Clinic, the author strongly dissents from the view that there is any frequency of such relation, while it appears admissible that gastric cancers frequently undergo ulceration.

The author's views on the connection between achylia gastrica, pernicious anemia and carcinoma, as well as upon the significance of gastric hyperacidity are also very interesting.

The general practitioner as well as specialists and surgeons will find this an excellent treatise on all matters within its scope.

MAY: DISEASES OF THE EYE

MANUAL OF THE DISEASES OF THE EYE. For Students and General Practitioners. *By Charles H. May, M.D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York,* 1916 *to* 1926; *Consulting Ophthalmologist to the Mt. Sinai Hospital, etc. Twelfth Edition, Revised. With* 374 *Original Illustrations, Including* 23 *Plates, With* 73 *Colored Figures. New York: William Wood and Company.* 1927. *Price* $4.00.

As a concise compendium of all that it is necessary to know regarding commonly met diseases of the eye, there is perhaps no better or better known book than that of Dr. May.

The fact that the book has run into twelve editions since its first appearance in 1900 and that there have been several editions in various foreign languages testify to its value and popularity.

In the present edition such additions and alterations as are required to bring the book up to date have been made, but the book has not been increased from its handy size.

This volume should be in the library of every general practitioner and medical student.

LEVINSON: EXAMINATION OF CHILDREN

EXAMINATION OF CHILDREN BY CLINICAL AND LABORATORY METHODS. *By Abraham Levinson, B.S., M.D., Chicago. Second Edition. With* 85 *Illustrations. St. Louis: The C. V. Mosby Company.* 1927. *Price* $3.50.

This volume comprises seventeen chapters, devoted to a consideration of the important methods of arriving at a diagnosis in the diseases of children.

Dr. Levinson is a well-known Chicago pediatrist, and the book is a result of the necessity of his finding a textbook for students at the Northwestern University Medical School which would embody the subject matter of his lectures. Articles were published in the *Journal of Laboratory and Clinical Medicine* on these subjects, and then this text followed.

The information is of importance to medical students and practitioners, and comprises such topics as Physical Examination, four chapters; Examination of Blood, Urine, and Stool; Smears and Cultures; Roentgenography and Fluoroscopy in Children; and two chapters on Treatment: Introduction of Fluid into the Child's Body; and Intubation, Extubation, and Tracheotomy.

The type is easily readable, the illustrations are good, and the book is to be highly recommended as one necessary to be included in the library of the general practitioner and the pediatrist.

R. H. K.

NURSES' PROCEDURE BOOK

PROCEDURE BOOK, THE METHODIST EPISCOPAL HOSPITAL. *Brooklyn, N.Y.*: The *Methodist Episcopal Hospital.* 1927. *Price* $2.00.

This booklet is a Nurses' Training School manual, containing detailed instructions for the performance of all duties in every department of a large, modern hospital, including diagnostic methods, diets and treatment.

It is a resume of the lesson notes used in teaching probationers and nurses, and should be very useful, not only for such purposes in other hospitals and training schools, but also to hospital superintendents and members of hospital staffs, who will find in it many items of great importance in their daily work, and can use it to simplify the giving of instructions to others.

MUMFORD: HEALTHY GROWTH

HEALTHY GROWTH. A Study of the Relation Between the Mental and Physical Development of Adolescent Boys in a Public Day School. *By Alfred A. Mumford, M.D., Medical Officer to the Manchester Grammar School, etc. With Foreword by Sir Arthur Keith, M.D., D.Sc., F.R.C.S., F.R.S. London, New York, etc.: Humphrey Milford, Oxford University Press.* 1927. *Price* $5.00.

Many persons at the present time are inclined to criticize our schools and colleges on account of the time and attention devoted to athletics; these people think that the physical side of the student is being unduly cultivated to the detriment of the mental.

In the book under review, Dr. Mumford has made a study of the boys in one of the

large English Grammar Schools which has flourished for 400 years. All modern devices for the measurement of vital phenomena, as well as for the determination of physical data, have been used, and the findings in regard to the boys of today are compared with the records of previous generations.

Dr. Mumford finds that the strenuous athletic life of this generation and the peculiarities of food and living conditions in cities have not lowered physical standards; in fact, they are better today than in the past. But what is more important, Dr. Mumford's study shows that mental capacity always parallels physical development. *Mens sana in corpore sano* is not a mere maxim. It is a fact determined by scientific observation that the brain and mind of a physically well-developed boy or girl are likely to be of better grade and capacity than when the physical development is poor.

The book contains a large amount of matter which should be of importance to every physician who is interested in the education and development of the young.

NEWSOME: NURSING

EVERYWOMAN A NURSE. Health and Nursing Notes. *For the Use of Nursing Societies, Technical School Classes, Red Cross and Ambulance Associations, etc., and in the Home. By Edith Newsome, S.R.N., Member of Roy. Brit. Nurses Assoc.; Certificated: St. Mary's Hospital, Portsmouth; Central Midwives Board; etc. London, New York, etc.: Humphrey Milford, Oxford University Press.* 1927. *Price* $1.25.

A little book intended for the use of men and women who are interested in the subject of nursing, and who may find themselves in the position that they would have to undertake the care of the sick, injured or wounded. It is a treatise on home nursing which will fulfil its purpose.

DRUECK: RECTAL FISTULA

FISTULA OF THE ANUS AND RECTUM. *By Charles John Drueck, M.D., F.A.C.S., Professor of Rectal Diseases Post Graduate Hospital and Medical School, Chicago. With 66 Original Illustrations. Philadelphia: F. A. Davis Company.* 1927. *Price* $3.50.

Rectal fistula is one of the most difficult conditions with which the surgeon has to cope, owing to the fact that its surgical treatment interferes to a great extent with the important function of evacuation. If not properly handled, the patient may be left in a permanently distressful condition.

Dr. Drueck's book is based, not alone on his surgical experience in treating a large number of clinical cases, but on his special study of the conditions, anatomic and other, connected with such fistulas.

The book is eminently practical. Space is not taken up with descriptions of various technics of the past. Dr. Drueck gives what he has found of value in the literature of the subject and comes right down to the present day methods which are clearly described and illustrated amply, so that they may be easily followed by the practitioner. Chapters are devoted to the different types of fistulas of the anus and rectum and their complications.

Special monographs such as this, based on original research and experience, are always welcome to the practitioner, or even to the specialist, because they round out the necessarily restricted descriptions found in textbooks.

PROUDFIT: DIETETICS FOR NURSES

DIETETICS FOR NURSES. *By Fairfax T. Proudfit, Instructor and Clinical Dietitian, Memphis General Hospital; Consultant in Dietotherapy to the Polyclinic, The Rudner Clinic; etc. Fourth Edition, Completely Revised. New York: The Macmillan Company.* 1927. *Price* $2.75.

The first edition of this book was issued in 1918 and the fact that a fourth edition is called for within nine years speaks well for its value and popularity.

In the present edition many changes have been made to bring the book into line with recent acquisitions of knowledge in regard to food and its disposal in the body; the added matters include the vitamins, newer phases of metabolism, and additions to the list of diseases brought within the scope of successful dietotherapy.

POTTS: GETTING WELL AND STAYING WELL

GETTING WELL AND STAYING WELL. A Book for Tuberculous Patients, Public Health Nurses, and Doctors. *By John Potts, M.D., Fort Worth, Texas. Introduction by J. B. McKnight, M.D., Superintendent and Medical Director, Texas State Tuberculosis Sanatorium. St. Louis: The C. V. Mosby Company.* 1927. *Price* $2.00.

A little book, written in a common-sense style and without technicalities, for the guidance of tuberculous persons, in which the rest cure, either at a sanatorium or at home, is stressed.

McAULIFFE: ESSENTIALS OF OTOLOGY

THE ESSENTIALS OF OTOLOGY. *By George Birmingham McAuliffe, A.B., M.D., F.A.C.S., Assistant Professor of Otology, Cornell Medical College; Oculist and Aurist, Misericordia Hospital; etc. New York: Oxford University Press,* 35 *West* 32*nd Street.* 1927. *Price* $4.00.

As the title implies, this book includes only the fundamental data with which every general medical practitioner should be familiar. All matters which are properly within the domain of the specialist

are omitted, and even the anatomy and physiology of the ear and its appurtenances are deferred to the final chapter.

Dr. McAuliffe's book is the embodiment of his personal teaching of the subject of otology for twenty-five years, and the subject is described just as it was presented to his students.

As a concise presentation of the essentials of modern otology, the book is recommended. General practitioners need such a book.

COOPE: PANCREATIC DISEASE

THE DIAGNOSIS OF PANCREATIC DISEASE. *By Robert Coope, M.D., B.Sc., M.R.C.P., Senior Assistant Physician, Royal Southern Hospital, Liverpool; etc. London, New York, etc.: Humphrey Milford, Oxford University Press.* 1927. *Price* $1.50.

This monograph is the Rogers Prize Essay in the University of London, 1926.

The book includes the anatomy and physiology of the pancreas, the clinical investigation of pancreatic disease and a clear description of the various tests for detecting deficiency or other abnormalities of pancreatic functioning.

The average practitioner probably pays scant attention to the pancreas in his diagnostic survey; a handy compendium such as this will probably bring many points to his notice that he might otherwise overlook and enable him to diagnose some obscure cases.

KEILLER: BRAIN AND CORD

NERVE TRACTS OF THE BRAIN AND CORD. Anatomy, Physiology, Applied Neurology. *By William Keiller, F.R.C.S., Ed., Professor of Anatomy and Applied Anatomy, University of Texas. New York: The Macmillan Company.* 1927. $8.00.

Dr. Keiller's object is to present the subject of the nerve tracts of the brain and cord in such a way as to furnish a good working scientific basis for an intelligent understanding of the symptomatology and diagnosis of those nervous diseases that come within the domain of the general practitioner.

The book is the result of twenty years' experience in teaching the anatomy of the brain and cord, and is divided into three parts: Part I supplies a laboratory manual for the study of the nerves and tracts in the central nervous system; Part II gives a summary of the anatomy and physiology of the brain tracts; and in Part III the leading features of the better known nervous diseases are given, correlating their symptomatology with anatomic, physiologic and pathologic data.

There is a large collection of clinical and schematic illustrations, many of them hand-drawn, and most of these appear to have been designed in a business-like way so as to convey a clear idea of the intricate matters dealt with.

The book is excellently printed and strongly bound. In every way it shows conscientious and careful work, and may be recommended to those who feel the need of such information as it contains. There should be many such persons.

RUSSELL: HAPPINESS

THE RIGHT TO BE HAPPY. *By Mrs. Bertrand Russell (Dora Russell). New York and London: Harper & Brothers.* 1927. *Price* $3.00.

The writer of this book is the wife of the well known modern philosopher and socialistic essayist, Bertrand Russell, and, while she, too, tends toward passivism, socialism, or even bolshevism, she *thinks*. Anyone who does this is worth listening to, if one can do so intelligently, keeping one's feet on the ground and recognizing fallacious reasoning when it appears.

The main purpose of the book is to show that human beings have an inherent right to be happy and to suggest some measures by which this result can be achieved. The method of attacking the problem is suggested by a line on the jacket, "A Protest Against Puritanical Standards."

Older people can scarcely contradict the author when she says that formalized religion has always laid stress on the necessity and value of discomfort and sorrow and has frequently suggested that anything pleasant was almost necessarily sinful. With this attitude Mrs. Russell dissents powerfully.

Neither does she feel that a doctrine of pure materialism will lead to the goals we seek, for she says, "Dogmas based on mechanics will not solve human problems or successfully promote human happiness."

The first part of the book gives the impression of being decidedly padded, and offers nothing new except a socialistic interpretation of history; but in the chapters on Sex and Parenthood and Modern Civilization, she gives us some bold ideas which, to many, will seem unduly radical.

The former of these two chapers is especially interesting and stimulating. The author shows that sex desire and the instinct for parenthood are by no means synonymous and that the latter is, probably, phylogenetically the older. She states our modern sex problems without equivocation, and suggests as a possible solution the general recognition and acceptance of temporary sex relationships, with the understanding that no progeny shall result from such unions. This, of course, implies the wide dissemination and use of contraceptive information.

But greater freedom in sex life will not cover the whole ground. The parental instinct still remains and the happiness of many depends upon its satisfaction. The taking over of the rearing of children by the State would simplify matters for those who seek only sexual freedom and exercise, but it would not appease the hunger of those who long to be mothers and fathers, in an intimate and personal sense. She

says, "The real problem of feminism is the emancipation of *mothers*—not merely of women."

All who are interested in the large questions involved in modern sociology and race betterment will find here much food for thought, even though they do not agree with everything the author says. The book is a challenge to ultraconservatism, hypocrisy and the Victorian attitude in general, and will make certain responsive echoes in the minds of those who are not afraid of revolutionary ideas.

POWELL: MENTAL BODY

THE MENTAL BODY. *By Lieut. Colonel Arthur E. Powell. London: The Theosophical Publishing House, Ltd. (Through the Theosophical Press, Wheaton, Ill.)* 1927. *Price* $3.50.

In view of the well known fact that our minds frequently work most swiftly and clearly when our physical bodies are in a state of suspended animation, due to some sudden shock or emergency, the hypothesis that the intellect functions in a vehicle of consciousness separate from the ordinary material structures—as is assumed by Col. Powell—cannot at once be dismissed as untenable.

If we grant that there is, or may be, a separate apparatus for carrying on the processes of thought, it becomes a matter of more than passing interest to study the anatomy and physiology of this mental body, for only by so doing can we learn how it can be developed and strengthened.

This book is a successor to those by the same author, dealing with the etheric and the astral bodies, which have already been reviewed in these columns.

The discussion begins with a general description of the structure and functions of the mental body, and its appearance under various conditions (as perceived by those who have developed this form of perception) is given in some detail.

The methods for the production and operation of thoughts are considered at some length; and the mechanism of conscious and unconscious thought-transference (telepathy), including mental healing, are dealt with very fully. This part of the book is of especial interest and value.

Several chapters are devoted to the mental faculties: Concentration, meditation, contemplation, and the life of the mind during sleep.

Assuming that mental life continues after the physical life is ended, the author proceeds to a careful description of the surroundings and activities of the ego on this plane of consciousness, including a consideration of the inhabitants, other than discarnate human beings, who are found there.

This book is a resume of all that has been written regarding the mental body, painstakingly arranged so as to form a connected narrative, and, as such, is worthy of a place in the library of every student who is interested in psychic phenomena, from any standpoint.

Whether or not one is prepared to accept Col. Powell's hypotheses, the book is fascinating reading and contains many practical and valuable suggestions for anyone who is interested in developing the intellect, as well as outlining a philosophy which explains many of the phenomena of life which are otherwise unexplainable.

FITZWILLIAMS: THE TONGUE

THE TONGUE AND ITS DISEASES. *By Duncan C. L. FitzWilliams, C.M.G., M.D., Ch.M., F.R.C.S., Edin. and Eng., Surgeon and Lecturer on Surgery to St. Mary's Hospital, Paddington Green Children's Hospital and Mount Vernon Hospital. London, New York, etc.; Humphrey Milford, Oxford University Press.* 1927. *Price* $11.00.

This monograph on the tongue and its diseases seems to be the most important that has appeared since the issue of Butlin's well known book on the same subject.

The book is essentially clinical and descriptive. The author has made use of the extensive collection of anatomic and pathologic specimens in the British museums and various private collections and these are described and illustrated.

A very large portion of the book is devoted to carcinoma, and the author considers that it is the chief mission to point out that, in place of being the hopeless disease it is usually considered, cancer of the tongue is just as curable, in its early stages, as is cancer elsewhere. The obvious deduction from this is that physicians should instruct their patients regarding the recognition and curability of cancer and urge its early operative treatment.

Every chapter in the book is enriched with case reports collected by the author from the literature or other sources.

Medical News

CURRENT ABSTRACTS

Mc-Neil-O-Gram is the title of a recent addition to the list of bulletins of timely abstracts of very recent medical articles which will help the doctor in keeping up to date. It is published by the firm of Robert McNeil, at 2900 N. Seventeenth St., Philadelphia.

NOBEL PRIZE WINNERS IN MEDICINE

The Nobel Prize in Medicine has this year been awarded, by the Swedish Academy of Sciences, to two European students and researchers, Drs. Fibiger and Frank.

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Dr. E. Frank is associate professor in the medical clinic of the University of Breslau, Germany. By experimentation with the guanidin bases he has produced a substance, known as **Synthalin**, which is said to possess properties quite similar to those of insulin, in the treatment of diabetes mellitus and kindred metabolic disorders.

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Dr. Johannes Fibiger is professor of pathology in the University of Copenhagen, Denmark, and has done some important research work in connection with **cancer**, particularly concerning the possibility of immunization against metastases in experimentally induced neoplasms.

ENDOCRINE INFORMATION

The January, 1928, number of *American Medicine* will be devoted entirely to endocrinology. It will, no doubt be worth watching for.

PHYSICIANS' CHRISTIAN ASSOCIATION

The idea that science is not incompatible with religion is rapidly gaining ground, and the idea that a physician must, necessarily, be a rank materialist is being discarded.

Dr. Howard A. Kelly, the well known surgeon of Johns Hopkins Hospital, Balti-

more, is one of the foremost advocates of combining Christianity with medical practice, and, on Otcober 18 and 19, 1927, he addressed a series of meetings in Buffalo, New York, which produced a profound impression and led to the organization of the Physicians' Christian Association, details regarding which may be obtained from Dr. Ray H. Johnson, 449 Franklin St., Buffalo, N. Y.

UNITED STATES CIVIL SERVICE EXAMINATIONS

Applications will be rated as received until January 7, 1928, to fill vacancies in hospitals of the United States Public Health Service and the Veterans' Bureau throughout the country in the following named positions at the yearly salaries indicated:

Laboratorian (*Bacteriology*).—Public Health Service, $1,320 to $2,100; Veterans' Bureau, $1,860 to $2,400.

Assistant Laboratorian (*Bacteriology*).—Public Health Service, $1,080 to $1,320; Veterans' Bureau, $1,500 to $1,860.

Laboratorian (*Roentgenology*).—Public Health Service, $1,800 to $2,400; Veterans' Bureau, $1,860 to $2,400.

Assistant Laboratorian (*Roentgenology.*) Public Health Service, $1,080 to $1,800; Veterans' Bureau, $1,500 to $1,860.

The lower salary named is the entrance salary in each instance. Higher-salaried positions are filled through promotion.

Appointees to the Public Health Service are also allowed quarters, subsistence and laundry. Appointees to the Veterans' Bureau are not allowed quarters, subsistence, and laundry in addition to salary, and when they are furnished by that Bureau a deduction therefor is made from the salary.

Applications will be received until Jan. 14, 1928, for appointment as:

Technical Assistant in Sanitary Engineering.

Salary, $2,100 a year.

The duties are to carry on public health engineering work pertaining to stream pollution, sanitary surveys, the treatment of water, sewage, and industrial wastes, drainage and antimalarial measures, sanitation of milk and shellfish, as well as elementary chemical and bacteriological laboratory work.

Competitors will be rated on theoretical and practical questions in sanitary engineering, and their training and experience.

Applications will be received until Jan. 10, 1928, for:

Associate Toxicologist.

Salary, $3,000 to $3,600 a year.

The duties consist of experimental work on the physiologic action of toxic compounds. A thesis or publications, of which the applicant is the author, on some subject connected with the duties of the position, is required.

Applicants will not be required to report for examination at any place, but will be rated on their education, training, and experience, as shown by their sworn statements and corroborative evidence.

For full information apply, stating the title of the examination desired, to the United States Civil Service Commission, Washington, D. C.

RACE BETTERMENT CONFERENCE

The third Race Betterment Conference (the first since the War) will be held at Battle Creek, Mich., January 2 to 6, 1928, with the twofold purpose of studying the questions of race degeneracy and progress in prolonging life, and of disseminating these facts for the benefit of humanity.

Dr. C. C. Little, president of the University of Michigan will head the Conference Committee, which will include also President Max Mason, of the University of Chicago, and President Glenn Frank, University of Wisconsin.

Delegates from the leading research laboratories will be present and the list of speakers will include many names of national and international celebrities in medicine and the allied sciences.

Send for This Literature

To assist doctors in obtaining current literature published by manufacturers of equipment, pharmaceuticals, physicians' supplies, foods, etc., CLINICAL MEDICINE AND SURGERY, North Chicago, Ill., will gladly forward requests for such catalogues, booklets, reprints, etc., as are listed from month to month in this department. Some of the material now available in printed form is shown below, each piece being given a key number. For convenience in ordering, our readers may use these numbers and simply send requests to this magazine. Our aim is to recommend only current literature which meets the standards of this paper as to reliability and adaptability for physicians' use.

Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment or medical supplies. Make use of this department.

A- 1 Helping the Cell to Help Itself. 32-page booklet by The Alkalol Co.

A- 2 Your Prestige and Profit. 8-page booklet. The Carroll Dunham Smith Pharmacal Co.

A- 3 Storm Binder and Abdominal Supporter. 4-page folder by Dr. Katherine L. Storm.

A- 4 Pluto Water. Its Medicinal Values. 16-page booklet. French Lick Springs Hotel Co.

A- 5 Ethical Medicinal Specialties, 8-page booklet. A. H. Robins Co.

A- 6 The Journal of Organotherapy. 95-page booklet published monthly. G. W. Carnrick Company.

A- 7 The Cure of Cystitis, Pyelitis and other Inflammatory Conditions of the Urinary Tract. Chicago Pharmacal Co.

A- 8 The Dangers of Curettage. Huston Bros. Company.

A- 9 Hang This Up—It Tells How to Make Percentage Solutions. Sharp and Dohme.

A-10 Twentieth Century Health Builders. Burdick Corporation.

A-11 The Role of Irradiation in Focal Infection and Obstructive Deafness by Ira O. Denman, M.D., F.A.C.S., Toledo, Ohio. Hanovia Chem. & Mfg. Co.

A-12 The Bloodless Phlebotomist, Vol. VI, No. III. The Denver Chem. Mfg. Co.

A-13 Endocrines and Hormones. Huston Brothers.

A-14 The New Ultra-Violet Therapy. McIntosh Electrical Corporation.

A-15 Atophan—Rheumatism, Gout, Neuritis, Sciatica, Neuralgia. Schering & Glatz, Inc.

A-16 Service Suggestions, January-February, 1928. Victor X-Ray Corporation.

A-17 An Index of Treatment. Burnham Soluble Iodine Co.

A-18 Taka-Diastase—Digestant of Carbohydrate Foods. Parke, Davis & Company.

A-19 Hyperacid Conditions, Their Relief and Correction, Alka-Zane. Wm. R. Warner & Company.

A-20 A Survey of Focal Infection. Fellows Medical Mfg. Co.

A-21 Eye Symptoms in General Diseases. Battle & Company.

A-22 Catalog of Dr. Scholl's Foot Comfort. Appliances and Remedies. The Scholl Mfg. Co.

A-23 National Therapeutic Arc Carbons. National Carbon Co.

A-24 German Resorts. German Health Resorts.

A-25 Program Medical Lectures in Bad Kissingen. German Health Resorts.

A-26 NEW SUGGESTIONS: X-Ray Technic with Petrolagar as Suspending Agent for the Opaque Meal, with reprint from the *Medical Journal and Record* for May 4, 1927, entitled "A Suggested Modification in the Technic of X-Ray Examinations of the Gastrointestinal Tract" by Dr. J. F. Montague, F.A.C.S. Deshell Laboratories, Inc.

A-27 Metatone. Parke, Davis & Company.

A-28 T. O. S. Tilden Company.

A-29 The Blood Picture. The Wilson Laboratories.

A-30 Dys-Amen-Caps. Tilden Company.

A-31 Value of Iodine in the Treatment of Scarlet Fever (Reprint) by Harry J. Novack, M.D., Philadelphia.

A-32 A Symptomatic Treatment of Tuberculosis. Loeser Laboratory.

A-33 Obstipation Treated by Colonic Therapy Combined with Intestinal Medication. Schellberg Institute, Inc.

A-34 Some Common Causes and Forms of Fecal Retention, Agarol. William R. Warner & Co., Inc.

A-35 Assisting Nature to Assist Itself. Reed & Carnrick.

A-36 An Incomparable Sedative-Hypnotic. The Hoffmann-La Roche Chemical Works.

A-37 pH 7.4, Alka-Zane. Wm. R. Warner & Co., Ltd.

A-38 Hycol. The Certified Disinfectant. Merck & Co.

A-39 A Convincing Solution of an Old Problem, Isacen. The Hoffmann-La Roche Chemical Works.

A-40 Truth Spreads by Testimony, Isacen. The Hoffmann-La Roche Chemical Works.

A-41 The Specific Treatment of Pneumonia with Numoquin Base. Merck & Company.

A-42 Detoxification in the Treatment of Infection. The Wm. S. Merrell Company.

A-43 "Humanize" Cow's Milk. The Wm. S. Merrell Company.

A-44 The Quartz Lamp. Hanovia Chemical & Mfg. Co.

A-45 Vera-Perles of Sandalwood Comp. Paul Plessner Co.

A-46 Bedtime Nourishment. Mellin's Food Co.

A-47 Campho-Phenique in Major and Minor Surgery. Campho-Phenique Co.

A-48 A New and Successful Synthetic Remedy—Cardiazol. E. Bilhuber, Inc.

A-49 The Calcreose Detail Man. Maltbie Chemical Co.

A-50 Outwitting Constipation. Standard Oil Co.

A-51 The Ideal Anti-Gonorrheic. Riedel & Co., Inc.

A-52 Cre-So-Mul. First Texas Chemical Mfg. Co.

A-53 The Burdick Zoalite, Standard Infra-red Generator. The Burdick Corporation.

A-54 Pigeon-hole this! You are apt to need it on short notice. The Hoffmann-La Roche Chemical Works.

A-55 Victor Serial "Fluorographic" Unit and "Fluorographic" Control Unit Victor X-Ray Corporation.

A-56 Regaining Health. How Science Can Guide You! The Fleischmann Co.

A-57 The Intravenous Injection of Lead in the Treatment of Malignancy. Loeser Laboratory.

A-58 The Pharmacology of Cod Liver Oil. Smith, Kline & French Co.

A-59 An Endocrine Galactagogue. Harrower Laboratory.

A-60 Dysovarism and The Menopause. Harrower Laboratory.

A-61 Chronic Toxemia and Hypophepatia. Harrower Laboratory.

A-62 Medical Pocket Quarterly—December. Reed & Carnrick.

A-63 Diathermy in the Treatment of Neisserian Infections of Women. Victor X-Ray Corporation.

A-64 Peripheral Facial Paralysis. Victor X-Ray Corporation.

A-65 Siomine (Methenamine Tetraiodide) $C^6 H^{12} N^4 I^4$ 78.5% Iodine. Pitman-Moore Company.

A-66 Kalzan (Calcium-Sodium Lactate Tablets). The Wulfing Company.

A-67 The Electro-Pathology of Local Inflammation. The Dionol Company.